

NYC Guide to the SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST for 2021 Admissions

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By October 21

REGISTER to test or audition for the Specialized High Schools


By December 4

APPLY to high school



Click here to read the 2021 NYC High School and Specialized High Schools Admissions Guide, which includes how to register and apply for LaGuardia High School and the eight testing Specialized High Schools.

REGISTER FOR THE SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST

 **MySchools.nyc.gov** | Visit MySchools to register for the SHSAT by the October 21, 2020 deadline! Use this guide to get ready for the test.

October 2020

S	M	T	W	T	F	S
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



[Click here](#) to read the 2021 NYC High School and Specialized High Schools Admissions Guide, which includes how to register and apply for LaGuardia High School and the eight testing Specialized High Schools.

English

Translations of this guide are available at middle schools, Family Welcome Centers, and online.

Arabic

تتوفر النسخ المترجمة من الدليل في المدارس المتوسطة، ومراكز استقبال العائلات، وعلى شبكة الإنترنت.

Bangla

এই গাইডের অনুবাদ মিডল্ স্কুলগুলো, ফ্যামিলি ওয়েলকাম সেন্টারগুলো, এবং অনলাইনে পাওয়া যাবে।

Chinese

各初中、家庭歡迎中心和網上都有本指南的譯本。

French

Des versions traduites de ce guide sont disponibles dans les collèges, les Centres d'accueil pour les familles et en ligne.

Haitian Creole

Gid sa a disponib nan lòt lang nan lekòl presegondè yo, nan Sant byenveni pou fanmi yo, ak sou entènèt.

Korean

안내서번역본은중학교,패밀리웰컴센터및온라인에서제공됩니다.

Russian

За переводом руководства обращайтесь в промежуточные школы, Семейные центры и на наш веб-сайт.

Spanish

Las versiones traducidas de esta guía están disponibles en las escuelas intermedias, en los Centros de Bienvenida a las Familias y en internet.

Urdu

اس رہنمائی کا ترجمہ مڈل اسکولوں، خاندانی استقبالیہ مراکز اور آن لائن دستیاب ہے۔

NYC Guide to the SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST for 2021 Admissions



The information in this guide is accurate at the time of publication but may be subject to change. Find the most up-to-date information on admissions, events, schools, and programs at schools.nyc.gov/SHS, schools.nyc.gov/High, and [MySchools.nyc](https://www.myschools.nyc.gov).

It is the policy of the New York City Department of Education to provide equal educational opportunities without regarding to actual or perceived race, color, religion, age, creed, ethnicity, national origin, alienage, citizenship status, disability, weight, gender (sex) or sexual orientation, and to maintain an environment free of harassment on the basis of any of these grounds, including sexual harassment or retaliation. Inquiries regarding compliance with appropriate laws may be directed to: Director, Office of Educational Opportunity, 65 Court Street, Room 1102, Brooklyn, New York 11201. Telephone **718-935-3320** / Toll-free: **877-332-4845**

WELCOME TO THE NYC GUIDE TO THE SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST (SHSAT) FOR 2021 ADMISSIONS

Take the SHSAT to apply for any/all of New York City's eight testing Specialized High Schools:

The Bronx High School of Science	High School of American Studies at Lehman College
The Brooklyn Latin School	Queens High School for the Sciences at York College
Brooklyn Technical High School	Staten Island Technical High School
High School for Mathematics, Science and Engineering at City College	Stuyvesant High School


Use this Guide to the SHSAT to:

- learn what is on the test
- find out how to prepare for each section of the SHSAT
- know what to expect and bring on test day
- understand how the test is scored
- take two full-length sample tests and try out practice questions; use the answer key and explanation to better understand and prepare for the SHSAT.

Audition to apply for the one audition Specialized High School, Fiorello H. LaGuardia High School of Music & Art and Performing Arts; admission to this school is not determined by the SHSAT. Admission to LaGuardia High School is determined by audition(s) and a review of academic records—[Click here](#) to learn more.



The Specialized High Schools in New York City were established under New York State Law 2590 – Section H. Entrance into these schools is determined by the Specialized High Schools Admissions Test (SHSAT), except for LaGuardia High School, which is based on a competitive audition and review of academic records. Students must be residents of New York City and current eighth grade or first-time ninth grade students in order to apply, register, sit for, and receive results for the Specialized High Schools Admissions Test (SHSAT), and LaGuardia High School audition(s). For the most up-to-date information about Specialized High Schools admissions, please visit schools.nyc.gov/SHS.


 [Click here](#) to read the 2021 High School and Specialized High Schools Admissions Guide

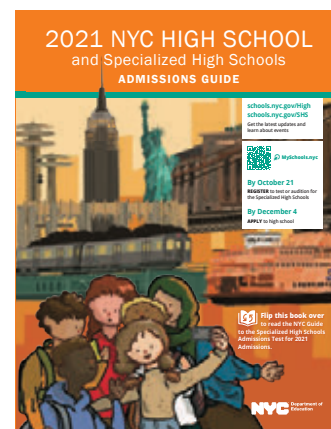
In the Admissions Guide, you'll find detailed information on how to register for the SHSAT and LaGuardia High School auditions by **October 21, 2020**.

Use the Admissions Guide to learn about:

- The Specialized High Schools admissions process (**Sections 6.0 – 8.0**)
- Applying to LaGuardia High School—learn how to register and prepare for your audition (**Section 7.0**)
- Applying to the eight testing Specialized High Schools—learn how to register for the SHSAT and list your school choices on your test ticket (**Section 8.0**)

As well as ...

- All of your NYC public high school options (**Section 1.0**)
- Admissions events where you can learn more about these options (**Section 2.0**)
- The high school admissions process (**Sections 3.0 – 5.0**)
- High school offer letters, including Specialized High Schools results (**Section 9.0**)
- Each NYC public high school, including the Specialized High Schools (**Section 10.0** and )



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TESTS AND PRACTICE QUESTIONS

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1.0 LEARN WHAT IS ON THE SHSAT

1.1 SHSAT Test Design

The SHSAT has two sections: English Language Arts (ELA) and Math. Standard administration time is 180 minutes to complete the test.

There are 57 questions total in each section; of these, 47 are scored questions and 10 are embedded field test questions, which are not scored.

You will NOT know which questions are scored and which are field test questions. It is to your advantage to answer all questions in each section.

1.2 English Language Arts Section (57 Questions)

The English Language Arts (ELA) section consists of two parts—Revising/Editing and Reading Comprehension—as described below.

Revising/Editing

Number of Questions	9–19
Skills Assessed	ability to recognize and correct language errors and improve overall quality of writing
Format	<u>Part A</u> : each question is based on its own sentence/paragraph <u>Part B</u> : all questions are based on a single, multi-paragraph text

Reading Comprehension

Number of Questions	38–48
Skills Assessed	ability to understand, analyze, and interpret texts from a variety of genres
Format	5–6 texts, including informational and literary, followed by 6–10 questions

Informational texts for ELA may include any of the text types that middle school students should have experience with, such as: exposition, argument, and functional text in the form of personal essays, speeches, opinion pieces, essays about art or literature, biographies, memoirs, journalism, and historical, scientific, technical, or economic accounts written for a broad audience.

Literary texts for ELA may include any of the text types that middle school students should have experience with, such as: poetry, adventure stories, historical fiction, mysteries, myths, science fiction, realistic fiction, allegories, parodies, or satire.

1.3 Math Section (57 Questions)

The Math section consists of word and computational questions in either a multiple-choice or grid-in format. There are five grid-in Math questions and 52 multiple-choice questions. Math questions on the Grade 8 test forms are based on material included in the New York City curriculum through Grade 7. Math questions on the Grade 9 test forms are based on material through Grade 8.

2.0 PREPARE TO TAKE THE SHSAT

Families should review this section together so that children are well prepared for the test.

2.1 Know What to Expect

- Become very familiar with the design of the test by reviewing the following in this handbook:**
 - description of the test on page 3
 - the two full-length sample tests
 - each sample test’s answer key and explanations
 - extra samples for the Math grid-in questions
 - specific sample Grade 9 questions (if you plan to take the test as a 9th grader)
- Become familiar with the sample items.**
 - ELA sample items start on page 7.
 - Math sample items start on page 20.
- Become familiar with the directions for each section so that you:**
 - fully understand what you have to do for each part of the test: Revising/Editing Parts A & B, Reading Comprehension, Math Grid-Ins, and Math Multiple-Choice
 - can focus your time on answering the questions rather than reading the directions on test day
- Become familiar with the answer sheet (pages 269–272) so that you can:**
 - easily fill in your name, grade level, and birth date on test day before you start the test
 - easily and accurately order your preferences for attending a Specialized High School
 - easily, accurately, and quickly mark your answers once the testing session begins on test day

2.2 Take the Practice Tests

- Make a plan.**
 - There are two sample tests in this handbook, and you can use them in any way you want; you are encouraged to use at least one of the tests to practice taking a full test under timed conditions.
 - You have 180 minutes to complete the test; eligible English Language Learners or students with extended time as an approved testing accommodation have 360 minutes to complete the test.
 - You may begin the test in whatever section/part you want, so decide in advance what order you will take the test in.
 - You may divide time between the ELA and Math sections however you want.
- Tear or cut out the two sample SHSAT answer sheets that are provided in the back of this handbook (pages 269–272).**
- Keep track of your 180 minutes of test time by using a watch or clock.**
- Start answering questions in either the ELA or Math section.**
 - Remember, it is up to you to decide which section you take first!

- Work carefully, but keep moving at a comfortable pace.
 - Do not spend more than a couple minutes on any one question.
- Bubble your answers on the answer sheet as you work through each question.**
- Answers must be completely filled in.**
- All answers must be recorded on the answer sheet BEFORE time is called. **Remember: you won't be given extra time to transfer answers to the answer document!**
- An educated guess can be the right answer.**
- Do this by eliminating the answer choice(s) that are definitely wrong, and then choose one of the remaining answers.
 - Your score is based on the number of *correct* answers marked on the answer sheet. Because there is no penalty for wrong answers, omitting a question will not give you an advantage.
- Check your work if you have time remaining.**
- If you finish before time is up, go back over your work to make sure that you followed instructions, did not skip any questions, and did not make careless mistakes. Remember: there is no penalty for wrong answers, so make sure you do not leave any questions blank!
 - Note that on testing day, you must remain in the testing room for the entire duration of the test (180 minutes).

SAMPLE ANSWER MARKS				
(A)	(B)	(C)	●	RIGHT
(A)	(B)	(C)	(D)	WRONG
(A)	(B)	(C)	(D)	WRONG
(A)	(B)	(C)	(D)	WRONG
(A)	(B)	●	●	WRONG

2.3 Check Your Answers from the Sample Test

- After you complete the sample test, check your answers against the list of correct answers.**
- Read the explanations of the correct answers to see the kinds of mistakes you may have made.
 - Check to see whether there is a pattern to your errors.
 - **ELA Example:** *did you miss many questions about central idea or author's purpose?*
 - **Math Example:** *did you miss many questions because of miscalculations?*
 - Seek out opportunities to do more practice in areas that challenged you!

2.4 How to Prepare for the English Language Arts Section

The English Language Arts section consists of 57 multiple-choice questions that assess revising/editing skills and reading comprehension. These questions are aligned to the **New York State Learning Standards**. The pages that follow provide tips for answering the revising/editing and the reading comprehension questions.

Overview of Revising/Editing Part A

The language skills assessed in this section are based on the Language section of the New York State Learning Standards for Grade 7, as well as skills or standards that may have been introduced in earlier grades, such as the Language Progressive Skills. Each question directs you to read a sentence, a list of sentences, or a paragraph with numbered sentences. Then you are asked to address issues related to conventions of language or punctuation. Examples include:

- selecting the best correction for an error
- identifying a sentence with an error
- improving the writing by combining sentences or revising part of a sentence



Tips for Revising/Editing Part A

First, read the question.

- For most items, read the question first rather than reading the text first so that you know what type of issue to look for while reading the text.

Next, read the text in the box and take notes on the issues you observe, while being mindful of time.

- Are there words, phrases, or sentences that are difficult to read due to an error in language usage or punctuation?
- Is there any part of the text that could be written more clearly, concisely, or precisely?
- Quickly mark up the text when you notice an issue. This may help you to select an answer option.
- Keep in mind that your notes should focus on the specific topic of the question.



- Before test day, plan how much time you will spend on Part A; this will help you to be efficient when answering each question on test day.

SAMPLE QUESTIONS FOR REVISING/EDITING PART A

Sample 1: Select the best correction/s for an error (or errors).

Read this paragraph.

(1) With its luscious trees and grassy fields stretching like a green ribbon across Manhattan, New York City's Central Park is a natural oasis amid the bustling city. (2) While more than 25 million people visited the park each year, they are also a temporary home to an abundance of migratory birds. (3) During the spring and fall migrations, the park becomes a bird watcher's paradise, prompting scores of avid birders with binoculars in hand to flock to it. (4) More than 270 species of birds, including swallows, thrushes, and at least 25 different species of warblers, have been observed making the park their home in the big city.

How should the paragraph be revised?

- A. Sentence 1: Change **its** to **their**, AND change **is** to **was**.
- B. Sentence 2: Change **visited** to **visit**, AND change **they are** to **it is**.
- C. Sentence 3: Change **becomes** to **became**, AND change **it** to **them**.
- D. Sentence 4: Change **have been** to **had been**, AND change **their** to **its**.



To determine the best revisions for this paragraph, read the possible changes listed in the first option as you read Sentence 1 in the paragraph. If a revision does not need to be made, continue reading each sentence and answer option until you find the correct answer.

Sample 2: Identify a sentence with an error.

Read this paragraph.

(1) Madison Square Garden is the oldest sports arena in the New York City area, having opened in 1968. (2) The construction of the Garden caused controversy when portions of the iconic Pennsylvania Railroad Station were demolished, leading to the creation of a commission dedicated to preserving New York City's historic landmarks. (3) Although the Garden is home to major sports teams and is a frequent host of major concerts, city officials are concerned that it stands in the way of expanding and modernizing Pennsylvania Station, which operates beneath the arena. (4) In 2013, the city council voted to give the owners of Madison Square Garden a 10-year operating permit, meaning that Madison Square Garden may need to relocate by 2023.

Which sentence should be revised to correct an error in sentence structure?

- E. sentence 1
- F. sentence 2
- G. sentence 3
- H. sentence 4



To identify the sentence, read carefully while being mindful of time; don't just skim. The error could be anywhere in the paragraph.



Note that the error is specific to *sentence structure*, which means it relates to how the words and phrases are placed in a sentence to convey (represent) the relationship between ideas.

Sample 3: Improve the writing by combining sentences or revising part of a sentence.

Read these sentences.

- (1) Whales are the giants of the ocean, and they spend their lives in underwater song.
(2) They use their voices to attract a mate, call out to one another, and help navigate new environments.

What is the best way to combine the sentences to clarify the relationship between the ideas?

- A. Whales are the giants of the ocean, spending their lives in underwater song, using their voices to attract a mate, calling out to one another, and helping navigate new environments.
- B. Whales, the giants of the ocean, spend their lives in underwater song, use their voices to attract a mate, call out to one another, and help navigate new environments.
- C. Whales are the giants of the ocean, spend their lives in underwater song, use their voices to attract a mate, call out to one another, and help navigate new environments.
- D. Whales, the giants of the ocean, spend their lives in underwater song, using their voices to attract a mate, call out to one another, and help navigate new environments.



To combine sentences, ask yourself

1. Are there any repeated words/ideas that can instead be used just once?
2. How are the different ideas connected? Do they represent a cause and effect, opposing ideas, a sequence, etc.?

Sample 1 Explanation

(B) Sentence 2 of the paragraph should be revised to correct the errors in verb tense and pronoun agreement. The paragraph is in the present tense, so the past tense “visited” needs to be changed to “visit.” Additionally, the pronoun “they” needs to be changed to the pronoun “it.” The pronoun refers to “the park,” which is a singular noun; it does not refer to “people,” which is plural. Option B is correct because the revisions in the option correct these errors.

Sample 2 Explanation

(E) Sentence 1 of the paragraph should be revised to correct an error in sentence structure. Specifically, the sentence should be revised to correct a misplaced modifier. As the sentence is written, the phrase “having opened in 1968” incorrectly modifies “the New York City area” instead of modifying “Madison Square Garden.” The correct placement of the phrase would change the beginning of sentence 1 to “Madison Square Garden, having opened in 1968, . . .” Option E correctly identifies sentence 1 as having an error in sentence structure.

Sample 3 Explanation

(D) Option D shows the best way to combine these sentences clearly and precisely because it shows the relationship between the key ideas of whales spending their lives in underwater song and the practical uses of their song.

Overview of Revising/Editing Part B

Questions in Part B assess your ability to read a text and then make decisions that improve the overall quality of the writing. The subjects presented in these texts will include historical and current events; people, places, and technology; and phenomena in the biological sciences, physical sciences, and social sciences. Each sentence is numbered so that you can quickly locate and refer to specific parts of the passage.

The text may contain errors such as

- language misuse
- missing or unnecessary supporting details
- missing or inappropriate transitional words, phrases, or sentences
- a missing or an unclear introductory statement or concluding statement
- confusing or illogical organization
- other errors related to language and writing standards



Tips for Revising/Editing Part B

First, read the text carefully while being mindful of time; don't skim.

- You need to understand the author's purpose, main idea, and supporting details of the text in order to answer questions about how the text could be better developed and organized, which requires careful reading.
- You may notice sentences and paragraphs that seem confusing, illogical, unnecessary, disorganized, or generally difficult to read.
- Note that the order in which you should read the text and question(s) for Part B is different from Part A. In Part A, you should read the *question* first. In Part B, you should read the *text* first.

Next, read each question carefully, while being mindful of time.

- Refer back to the text and reread the relevant sentences or paragraphs that are mentioned in the question.
- You will also likely need to skim the sentence before and after the sentence that is referenced in a question.
- Consider each answer option, rereading the text as necessary (and as time permits). Determine whether the option represents the best revision.



- Before test day, plan how much time you will spend on Part B; this will help you to be efficient when answering each question on test day.

SAMPLE QUESTIONS FOR REVISING/EDITING PART B

Game Night

(1) Some people think that board games are outdated and boring, unable to provide much entertainment to today's electronic-savvy teens. (2) But opening a cardboard box full of colorful and sometimes elaborate game pieces can offer a refreshing experience, one that cannot be matched by a video game controller and headset. (3) Playing board games is really quite fun.

(4) Board games have exploded in popularity in the past several years as people have discovered how entertaining and interesting a complex or strategic game can be. (5) In the board game Ticket to Ride, players compete against one another. (6) The goal is to create a long railway that connects destinations on a map. (7) This requires collecting resources and building rail lines in strategic places. (8) The game encourages players to think in new ways, and the brain gets exercise that it needs in order to grow.

(9) Playing board games with others can also help bring people together. (10) When you take part in a board game, you get to know the other players. (11) People separated by generations can find common ground across the table from one another when they are all enjoying the same board game. (12) In addition, playing board games can often encourage discussion among players about a variety of topics. (13) Some games are even developed as learning games and aim to teach players about a topic as they play. (14) In a world where digital interactions tend to occur more frequently than true face-to-face interactions, coming together in person to enjoy a board game can be a fun way to maintain or create connections with other people.

(15) In addition to helping people develop relationships, playing board games gives people an opportunity to hone skills that apply to real life. (16) Competitive board games challenge people to compete and to use strategies to outwit one another. (17) Cooperative board games require players to collaborate and to use their individual strengths to achieve a common goal. (18) The act of playing almost any board game can help a person learn to be a humble winner and a gracious loser and help improve a person's focus, self-control, and critical thinking.

(19) Playing board games is an excellent way to exercise one's brain, engage with other people, and practice essential strategies for handling real-life situations. (20) There are hundreds of competitive and cooperative board games that can provide the ideal balance between entertainment and challenge.



To maintain formal style, writers often rely on very precise, concise, and sometimes highly academic language. For questions like this, you should read and consider the style of the entire passage and then consider which option best maintains this style.

1. Which revision of sentence 10 best maintains the formal style established in the passage?
- A. When you play a board game with people, you become friendly with them.
 - B. When people participate in a board game, they develop relationships with each other.
 - C. When people get together for a board game, they learn about each other.
 - D. When you become involved in a board game with people, you make friends with the players.

2. Which sentence should be added after sentence 18 to help develop the ideas in the fourth paragraph (sentences 15–18)?
- E. Playing board games can teach a person a lot about how to manage the daily obstacles that are a natural part of life.
 - F. The skills used to play games can be useful, as almost all occupations require people to make decisions that can have positive or negative results.
 - G. People who learn these things will develop strong interpersonal skills, which are an advantage when developing relationships.
 - H. Concentrating on a goal, responding well to positive and negative outcomes, and making logical decisions are valuable skills in many situations.
3. Which concluding sentence would best follow sentence 20 and support the main argument presented in the passage?
- A. People should seek out board games that require players to develop complex strategies to defeat opponents.
 - B. People should choose board games that appeal to them and encourage friends and family to take a seat at the gaming table.
 - C. People should play board games that involve significant player interaction as they try to achieve the same or different goals.
 - D. People should find board games that allow friends and family to reap the benefits of regularly playing games.

Sample 1 Explanation

(B) Option B is the correct response because this revision uses precise, formal language (“participate” and “develop relationships”) that maintains the style established in the passage. In addition, this option avoids using the informal second person (“you”) and instead uses “people” to refer to board-game players, which further contributes to the formal style.

Sample 2 Explanation

(H) Option H is the correct response because this sentence further develops the ideas that are presented in sentence 18 (that playing board games can help a person learn to win and lose with grace and can “help improve a person’s focus, self-control, and critical thinking”). This sentence develops these ideas by explaining that these qualities are valuable in situations beyond playing board games.

Sample 3 Explanation

(B) Option B is the correct response because it logically follows the description in sentence 20 that there are “hundreds of competitive and cooperative board games” with the suggestion that a person should choose one that they find appealing or interesting. The passage explains the benefits of playing board games, and the sentence in option B supports the main argument of the passage by emphasizing that playing board games is a fun way to bring people together.

Overview of Reading Comprehension

This section assesses your ability to read and comprehend up to six texts of both literary and informational genres, which may include any of the text types listed below.

Informational genre may include	Literary genre may include
expository/explanatory texts	poetry
argumentative texts	adventure stories
functional text in the form of: <ul style="list-style-type: none">• personal essays• speeches• opinion pieces• essays about art or literature• biographies• memoirs• journalism• historical, scientific, technical, or economic accounts written for a broad audience	historical fiction
	mysteries
	myths
	science fiction
	realistic fiction
	allegories
	parodies
	satire



Tips for Reading Comprehension

Read the text carefully while being mindful of time; don't skim.

- Read the text carefully to ensure you have an accurate and text-based understanding of both the big ideas and important details.
- Monitor your comprehension while you read; if a sentence or paragraph is confusing, try quickly rereading it.

Take notes.

- Jot *brief* notes to identify important details, summarize ideas, etc., while reading the text in its entirety.

Read the question carefully.

- Read the question carefully so that you clearly understand what the question is asking. For example, do you need to focus on details in just one paragraph or multiple paragraphs?
- If time permits, reread the relevant part or parts of the text.

Try to determine the answer before reading the answer options.

- Think of the answer before reading each option. Then read each answer option, eliminating ones that definitely seem incorrect, and choose the one that best matches your thinking.
- Base your answers only on the content of the text (and associated images or graphics where relevant). Do not depend on your prior knowledge of the topic.



- Before test day, plan how much time you will spend on each of the texts and their related questions in the Reading Comprehension section; this will help you to be efficient when answering each question on test day.

Snoozing While Soaring

- 1 Certain types of birds soar for hundreds of miles, over land, over sea—and never stop to rest. That kind of endurance seems impossible to us, since we as people need time to rest and sleep. Researchers set out to learn how birds could fly for such long distances without restorative rest. They found that for some birds, settling in for a good night's rest is not always a necessity.
- 2 In 2013 Felix Liechti and his research colleagues at the Swiss Ornithological Institute published results of a study about the flight habits of Alpine swifts, small birds that migrate annually between Europe and Africa. Liechti and his team fitted the birds with small electronic tags that recorded the birds' acceleration and their pitch, or angle relative to the ground. The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days. Since all animals require sleep, the researchers inferred that the birds slept from time to time on their long journey. However, since the electronic tags recorded only movement such as gliding or flying, and not brain waves, the question of whether birds sleep during flight remained unanswered.
- 3 Researcher Niels Rattenborg from the Max Planck Institute for Ornithology also delved into this question. In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying. Like mammals, Rattenborg explained, birds experience different types of sleep, including slow-wave sleep (SWS). Rattenborg argued that SWS during flight is plausible because SWS can happen in one hemisphere of the brain at a time, leaving half of the brain essentially awake while the other half sleeps. The eye associated with the "awake" hemisphere can still function, allowing a bird to see where it is going. Rattenborg decided that electroencephalogram (EEG) recordings of birds' brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.
- 4 Eventually, Rattenborg and his team were able to create an experiment to prove this theory by studying frigatebirds from the Galápagos Islands. These enormous birds are good subjects for avian-sleep research because they fly far out to sea to hunt fish. However, unlike many seabirds, they cannot land on the water to rest because the physical build of their body—long wings, poorly webbed feet, and minimal feather waterproofing—makes them unable to take off again from the surface of the water. Rattenborg concluded that they must remain in flight for up to two months at a time.
- 5 In an article from 2016, Rattenborg outlined the team's research methods and conclusions. The team humanely implanted EEGs on the skulls of several frigatebirds. After analyzing the EEG readings of the birds while in flight, the team determined that the frigatebirds slow-wave slept for about ten seconds at a time at points when the birds were gliding upward via warm air currents, typically the safest part of the flight. While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights. They later recovered from the stress of going with very little sleep when they rested for approximately twelve hours each day back on land.
- 6 Using EEG recordings, Niels Rattenborg solved the puzzle of when birds sleep while traveling long distances. His evidence proved that his theory was correct, and the birds proved themselves to be the ultimate multitaskers as they manage sleep and flight at the same time.

1. Read this sentence from paragraph 1.

That kind of endurance seems impossible to us, since we as people need time to rest and sleep.

The words “endurance” and “impossible” in the sentence convey

- A. amazement about the physical capability of birds to remain in flight for extended periods of time over long distances.
 - B. uncertainty about the conditions that allow birds to stay in flight for extended periods of time without rest.
 - C. excitement about the opportunity to share research into how birds fly for extended periods of time.
 - D. skepticism about discovering how birds can fly for extended periods of time with little or no rest.
2. Which sentence from the passage best supports the idea that birds seem to be capable of making prolonged flights without sleeping?
 - E. “The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days.” (paragraph 2)
 - F. “In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying.” (paragraph 3)
 - G. “Rattenborg decided that electroencephalogram (EEG) recordings of birds’ brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.” (paragraph 3)
 - H. “While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights.” (paragraph 5)

3. Which statement best summarizes the conclusions of the studies presented in the passage?
- A. Scientists used monitoring devices to determine that the seconds when migratory birds glide upward in warm air currents are safest for slow-wave sleep.
 - B. Using monitoring devices, scientists confirmed that migratory birds sleep for an extremely short amount of time while in flight and recuperate by sleeping for an extended period of time after they land.
 - C. Scientists used monitoring devices to determine that migratory birds require significantly less sleep than many other animals and to show that the birds use only one hemisphere of their brain while flying.
 - D. Using monitoring devices, scientists confirmed that some types of migratory birds rely on slow-wave sleep cycles in order to stay in flight for extended periods of time.
4. The overall organizational structure of the passage allows the author to
- E. contrast the significance of research findings related to small migratory birds with those related to large migratory birds.
 - F. compare the in-flight sleep patterns of the various types of birds examined in several studies.
 - G. emphasize the role of technology in studying sleep patterns of birds in flight.
 - H. illustrate how researchers acquired a better understanding of the sleep patterns of birds in flight.

Sample 1 Explanation

(A) Option A is the correct response because it explains that the words “endurance” and “impossible” convey amazement at the birds’ ability to remain in flight for so long without resting—as opposed to human beings, who “need time to rest and sleep” (paragraph 1). Specifically, the word “impossible” implies a sense of wonder or disbelief at the birds’ endurance, which allows them to continue flying for hundreds of miles without stopping. The words “endurance” and “impossible” support the idea expressed later in the passage that these birds are the “ultimate multitaskers” (paragraph 6).

Sample 2 Explanation

(E) Option E best supports the idea that birds seem to be capable of making prolonged flights without sleeping, because it expresses the idea that the birds “remained completely airborne” during “a period of over 200 days” (paragraph 2). This information is significantly more precise than the information in the other answer options. Therefore, option E provides more compelling evidence to support the idea in the question than the other answer options provide.

Sample 3 Explanation

(D) Option D best summarizes the conclusions of the studies presented in the passage. While all the options include some important details about the study of migratory birds, option D accurately states the key conclusion of these studies, which is that these birds “rely on slow-wave sleep cycles in order to stay in flight for extended periods of time” (paragraph 5). Option D’s emphasis on the key conclusion rather than on key details makes it the correct response.

Sample 4 Explanation

(H) Option H best explains the effect of the overall structure of the passage. The passage presents an unresolved question in paragraph 2, while paragraph 3 explains one researcher’s attempt at seeking an answer to the question. Paragraph 4 describes the bird the researchers chose due to its physical makeup and feeding habits. Paragraphs 5 and 6 illustrate the details and outcome of the study, revealing the researchers’ conclusion. Therefore, the overall structure of the passage illustrates how researchers improved their understanding of the sleep patterns of birds in flight.

2.5 How to Prepare for the Math Section

The Math section consists of word problems and computational questions in either a grid-in or multiple-choice format. There are five grid-in questions and 52 multiple-choice questions. The Math questions involve application of mathematical skills, mathematical terms, and general concepts from the New York State Learning Standards for Mathematics. However, as one of the purposes of this test is to identify students who will benefit from an education at a Specialized High School, the SHSAT Math items will require you to apply familiar Math skills to complex, multi-step problems.

Math questions on the Grade 8 test forms are based on the New York State Learning Standards through Grade 7. Math questions on the Grade 9 test forms are based on material through Grade 8.

The following pages outline a variety of tips to help you prepare for taking the Math section on the SHSAT. They include the following:

- tips to improve your Math skills in Math topics you need more practice with
- tips to familiarize you with expectations that are specific to the SHSAT and may therefore be different from other Math tests you take
- tips specifically for answering multiple-choice Math questions
- tips specifically for answering Math grid-in questions

Note: Answers and answer explanations for all the Math sample items can be found on pages 23–25.



Tips to Improve Your Math Skills

Review Math resources.

- Use your Math textbook, seek out other Math resources at school or at your local library, or ask your teacher to recommend resources for you to use.

Practice solving Math questions every day. Solve both basic and challenging questions.

- Basic questions reinforce Math skills such as simplifying fractions and applying the concept of statistics.
 - More challenging questions require setting up complex equations with multiple steps. They may also require using various types of Math skills. For example, you may use fractions, solve for equations, and apply your knowledge of statistics to answer one question.
 - If you are unsure of how to answer a question, skip it and return to it after answering the other questions. You may have a better idea of how to solve a problem after completing other questions.
-



Things to Keep in Mind While Preparing for the Math Section

Memorize mathematical terms, symbols, and formulas that you use in your Math class.

- You must know the meanings of mathematical terms that are appropriate for your grade level, such as “parallel” and “perpendicular,” as well as the symbols that represent those terms.
- You can find mathematical terms, symbols, and formulas, such as those for perimeter and area of different figures, in the materials for your Math classes and online in the Grade 7 and 8 New York State Learning Standards.
- Definitions and explanations for terms, symbols, and formulas will NOT be given in the test booklet. Practice using them to solve questions until you have memorized them and can use them with ease.

Do not use a calculator when solving questions.

- The use of calculators is **not** permitted while taking the SHSAT.



- Before test day, plan how much time you will spend on the Math section; this will help you to be efficient when answering each question on test day.



Tips for Solving Math Problems

Read each question carefully.

- Read carefully so that you accurately set up complex problems using *all* the important information from the question.
- Mark up the question, as in Sample 1, to ensure you include all the information when solving the problem.
- Change words from the question into mathematical symbols (as noted in Sample 1 and Sample 2).

Sample 1

The $+$ sum of two consecutive integers $x, x+1$ is -15 . If 1 is added to the smaller integer and 2 is subtracted from the larger integer, what is the **product** of the two resulting integers?



Mark up the question to prepare for solving the problem.

Sample 2

J Jenny starts a game with twice as many marbles as Keiko $2K$ Jenny gives Keiko 5 marbles $J-5$ but she still has 10 more than Keiko. How many marbles did Jenny have to start with?

- A. 25
- B. 30
- C. 35
- D. 40

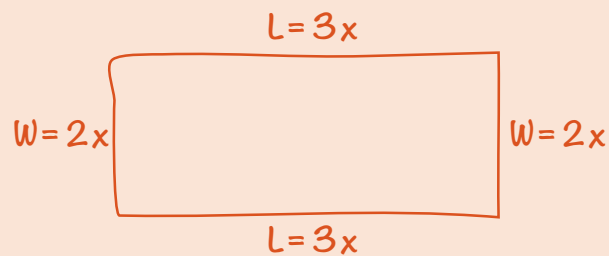


Change words from the question into mathematical symbols.

Draw figures or diagrams for questions that do not have them.

➤ Draw figures or diagrams, like in the example below, to help you visualize what the question is describing.

Sample 3



The perimeter of a rectangle is 510 centimeters. The ratio of the length to the width is 3:2. What are the dimensions of this rectangle?

- E.** 150 cm by 105 cm
- F.** 153 cm by 102 cm
- G.** 158 cm by 97 cm
- H.** 165 cm by 90 cm



Label figures and diagrams.

Take one step at a time.

- Some questions ask you to combine a series of steps. Write out one step at a time, like in the example below, to solve multi-step problems.

Sample 4

1 dollar = 7 lorgs
1 dollar = 0.5 dalts

Malik has 140 lorgs and 16 dalts. If he exchanges the lorgs and dalts for dollars according to the rates above, how many dollars will he receive?

- A. \$28
- B. \$52
- C. \$182
- D. \$282

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$20 + 32 = \$52$$



Step 1: Convert lorgs to dollars.



Step 2: Convert dalts to dollars.



Step 3: Add your conversions of lorgs and dalts together.



Tips for Math Multiple-Choice Questions

Most multiple-choice questions should be done by working out the answer.

- Solving the problem *before* looking at the answer options is more effective than looking first at the answer options and *then* trying to estimate the accuracy of each one to get to the correct answer.

It is best to solve problems on paper (rather than just in your head) and to focus on solving rather than selecting.

- When you get an answer, look at the choices listed. If your answer is included among the choices, mark it. If it is not, reread the question and solve it again.
- If your answer is not among the answer options, consider other ways to write your answer. For example; $\frac{5}{9}(3 + x)$ is equivalent to all of the following:
 $\frac{5(3 + x)}{9}$ and $\frac{5}{3} + \frac{5}{9}x$ and $\frac{5}{3} + \frac{5x}{9}$.
- If your answer is still not among the answer options, make your best guess and/or come back later if you have time.

Sample 1 Explanation

If x is the smaller consecutive integer, then $x + 1$ is the larger consecutive integer. Use their sum -15 to find x :

$$x + (x + 1) = -15$$

$$2x + 1 = -15$$

$$2x = -16$$

$$x = -8$$

The two consecutive integers are -8 and -7 .

One is added to the smaller integer: $-8 + 1 = -7$.

Two is subtracted from the larger integer: $-7 - 2 = -9$.

Find the product: $-7 \times -9 = 63$.

Sample 2 Explanation

(D) Set up some equations.

Jenny (J) has twice as many marbles as Keiko (K): $J = 2K$

Jenny gives Keiko 5 marbles, so now they each have: $J - 5$ and $K + 5$ marbles.

Jenny still has 10 more than Keiko:

$$J - 5 = (K + 5) + 10$$

To find how many marbles Jenny had to start with, solve $J = 2K$ for K and substitute that into the second equation:

In equation $J = 2K$, solve for K : $K = \frac{J}{2}$.

Substitute $\frac{J}{2}$ in for K .

$$J - 5 = (K + 5) + 10$$

$$J - 5 = \left(\frac{J}{2} + 5\right) + 10$$

$$J - 5 = \frac{J}{2} + 15$$

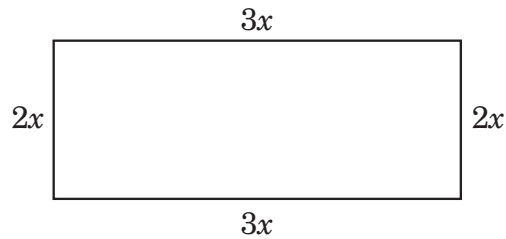
$$\frac{J}{2} = 20$$

$$J = 40 \text{ marbles}$$

Sample 3 Explanation

(F) Let $2x$ = the width and $3x$ = the length.

Draw the rectangle to help visualize.



Since $2w + 2l = P$, we get

$$2(2x) + 2(3x) = 510$$

$$4x + 6x = 510$$

$$10x = 510$$

$$x = 51$$

$$2x = 102\text{cm and } 3x = 152 \text{ cm}$$

Sample 4 Explanation

(B) Use proportions to make the conversions:

Lorgs to dollars:

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

Dalts to dollars:

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$\text{Total dollars} = 20 + 32 = \$52$$

How to Complete Math Grid-In Questions

The Math section includes five grid-in questions for which students must solve computational questions and provide the correct numerical answer rather than selecting the answer from multiple-choice options.

- The grid for each question is made up of five columns. When you record your answer in the grid, begin on the left.
- For each grid-in question, write your answer in the boxes at the top of the grid.
- Print only one number or decimal symbol in each box. Use the "." symbol if your response includes a decimal point.
- Fill in the circle under the box that matches the number or symbol that you wrote.

EXAMPLE A
(Answer: 5)

Write the answer in these boxes. →

5				
-	.			
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
●	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Fill in the circles that correspond to the answer written in the boxes.

EXAMPLE B
(Answer: 3.2)

Negative sign →

3	.	2		
-	.			
0	0	0	0	0
1	1	1	1	1
2	2	●	2	2
●	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

← Decimal point

How to Answer Math Grid-In Questions (*continued*)

- The first column on the left of the grid is **ONLY** for recording a negative sign, as in **Example C**. If your answer is positive, leave the first column blank and begin recording your answer in the second column.

EXAMPLE C
(Answer: -1.5)

	-	1	.	5	
Negative sign →	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Decimal point ←
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- When your answer includes a decimal, make sure to fill in the circles that match all parts of your answer. For example, if your answer is 0.78, fill in the circles under the 0, ".", 7, and 8, like in **Example D**. Note that an answer displaying .78 will also be accepted as correct, like in **Example E**.

EXAMPLE D
(Answer: 0.78)

	0	.	7	8
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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EXAMPLE E
(Answer: .78)

	.	7	8
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Examples D and E show acceptable ways to grid the same answer.

How to Answer Math Grid-In Questions (*continued*)

- Do not leave a box blank in the middle of an answer. If there is a blank in the middle of your answer, it will be scored as incorrect. For example, if your answer is 308, **Example F** is the acceptable way to grid in your response. In **Example G**, there is a space between the 3 and the 8 rather than a 0—this is an unacceptable way to grid in your response and will be scored as incorrect.

EXAMPLE F
(Answer: 308)

3	0	8
-	.	.
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

EXAMPLE G
(Answer: 38)

3		8
-	.	.
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

- Do not fill in a circle under an unused box, as in **Example H**. The answer recorded in Example H will be scored as 3,080 because the circle in the last column for 0 is filled in, even though the intended response is 308.

EXAMPLE H
(Answer: 3080)

3	0	8	0
-	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Important Notes about Grid-Ins

- For your answer to be scored, the circles in the grid must be filled in.
- If you write an answer in the boxes but do not fill in the circles in the grid, your answer will be scored as incorrect.
- If your answer written in the boxes does not match how you have filled in the circles, your score will be based on how you have filled in the circles, like in Example H.
- If there is more than one circle filled in for a column, your answer will be scored as incorrect.
- A complete numerical response that is correct will be scored as correct, even if you accidentally begin recording in the wrong column.
- If you accidentally add a decimal point (with no additional values or zeros) after a whole number, your answer will be scored as that whole number. For example, if your answer is 5, as in Example A, an answer that is filled in as 5. or 5.0 will be considered an answer of 5 in scoring.

3.0 GET READY FOR TEST DAY

3.1 What to Bring to Your Testing Session

You MUST bring the following to the testing session:

- ✓ your SHSAT test ticket signed by you and your parent/guardian with your specialized high school choices
- ✓ sharpened Number 2 pencils (you cannot use a pen)
- ✓ eraser
- ✓ Assistive Technology (if indicated on your IEP and test ticket)

You CAN, but are not required to bring:

- ✓ slant board
- ✓ pencil grip
- ✓ FM unit
- ✓ highlighter
- ✓ watch that is silent and NOT a calculator
- ✓ a quiet, unwrapped snack (Students can have their snack before the beginning of the test administration; snacks are NOT allowed during testing time.)
- ✓ water (in a soft or plastic container that doesn't make noise if tipped)

3.2 What NOT to Bring

Not Permitted

- ✗ cameras
- ✗ calculators
- ✗ smart watches
- ✗ MP3 Player/iPod
- ✗ tablet/iPad, ebook reader
- ✗ smart phones, other cell phones, any other electronic device
- ✗ outside written materials
- ✗ soda, juice, or any other drinks beyond water; water is the only beverage allowed in the testing site

Note on Cell Phones

Cell phones are permitted in test site, but:

1. they must be turned off
2. you may not have them with you during the test—this means they may not be in your pocket, hand, or desk

The test site will instruct you on what to do with your cell phone before the test starts. You will be instructed to turn off and store cell phones, cameras, and other electronic devices according to the regulations set by the test site.

Will Be Provided by Test Site

- ✓ test booklet
- ✓ answer sheet
- ✓ scrap paper, which is attached to the booklet and can be used to take notes for Math calculations and will be collected at the end of the test
- ✓ **ELLs ONLY** will receive a math bilingual glossary in one of the nine DOE languages : Arabic, Bangla-Bengali, Chinese, French, Haitian Creole, Korean, Russian, Spanish and Urdu.

3.3 Test Day Expectations

- Be sure to arrive at the test site at the time that is on your SHSAT test ticket. Please note that this is the arrival time, not the time that the test will start. The test will begin as soon as possible after the time on your ticket. In some cases, the test may begin an hour or more after the arrival time noted on the test ticket. Your testing site can provide you with estimated times when the test will end and students will be released.
- Before the test begins, our site staff will take a photograph or video of the students in each testing room. These images will be used for test security purposes only.
- All students taking the SHSAT must stay in testing rooms for the entire standard test administration time (180 minutes), with the exception of using the bathroom.
- Once the standard test administration time (180 minutes) is over, students with an accommodation of extended time may leave if they have finished working on the exam. Students who decide to leave after the first 180 minutes of the standard test administration time must sign out to indicate they understood they gave up their remaining available time on the SHSAT. Students with this accommodation will have a break at the conclusion of the 180 minutes, and then again after another 90 minutes have passed.

3.4 Filling In the Answer Sheet

Before taking the test, you will fill out important information on Side 1 of your answer sheet. First, you will be asked to read and sign a statement on your answer sheet stating that you are well enough to take the test, a resident of New York City, and are taking the test for the correct grade level.

- If you do not feel well, you should inform the test proctor immediately; you should not begin the test or sign the statement. Once you break the security seal and begin the test, you may not be able to request a make-up test due to illness.
- Be sure you are taking the test for the correct grade level.
- Grid 5 is for your specialized high schools choices. Admission is based on your test score, the order of your school choices, and the number of seats available at each school. It is very important that you make your decisions about how to order schools before the day of the test. Discuss with your family the schools you are interested in; then determine the order in which you will list them on

the answer sheet. Only choices made in Grid 5 will be considered.



Bubble in your school choices on your Test Ticket so that you will be able to carefully copy them onto Grid 5 on your answer sheet at the test site.

You must fill in one and only one circle for each school for which you wish to be considered. You may make as few as one or as many as eight choices. To increase your chances of receiving an offer to one of the Specialized High Schools, you are encouraged to make more than one choice, and you are required to fill in at least a first choice school.



[Click here](#) to read the 2021 High School and Specialized High Schools Admissions Guide. See how to rank your school choices on your test ticket in **Section 8.5**, and learn more about each school in **Sections 10.1–10.5** (schools are organized alphabetically by borough) or online at **MySchools.nyc/schools/high-school**.

EXAMPLES OF CORRECT GRID 5

This student accurately ranked all eight schools.

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

This student accurately ranked just two schools.

You MUST fill in a first-choice school.

EXAMPLES OF INCORRECT GRID 5

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DO NOT fill in more than one circle in a column.

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DO NOT fill in more than one circle in a row.

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Stuyvesant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DO NOT fill in the same school for each choice.

When you are told to begin the test, mark your answers on the answer sheet by completely filling in the appropriate circle. Make sure your marks are heavy and dark. Be careful not to make any stray marks on the answer sheet. If you change an answer, completely erase your first answer. There is only one correct answer to each question. If your answer sheet shows more than one mark in response to a question, that question will be scored as incorrect.

SAMPLE ANSWER MARKS				
(A)	(B)	(C)	●	RIGHT
ⓧ	(B)	(C)	(D)	WRONG
(A)	ⓧ	(C)	(D)	WRONG
(A)	(B)	●	(D)	WRONG
(A)	(B)	●	●	WRONG

You may write in your test booklet or on the scrap paper provided to work through ELA or Math questions, but your answers must be recorded on the answer sheet in order to be counted. It will not be possible to go back and mark your answers on the answer sheet after time is up. Information in the test booklet or on scrap paper will not be counted.

3.5 Student Misconduct

Test security is critical for the SHSAT. As such, the following rules are strictly enforced to ensure all students have a fair testing experience.

- During the test, you may not attempt to communicate with other students in any way. This includes, but is not limited to:
 - speaking, writing and passing notes
 - sharing test booklets or answer sheets
 - looking at other students' answers
 - recording test questions
 - possession of a cell phone, camera or other electronic device (even if it is powered off)
- At the end of the test, you will be told to stop and put your pencil down and will be given directions about your testing materials. Once your test administrator tells you to put your pencil down, you may not continue writing on any of your testing materials, which includes, but is not limited to:
 - darkening bubbles
 - circling bubbles
 - erasing responses
- Test questions and answers may not be shared with any individuals outside of the testing site.

Students found to be engaging in any of these activities will have their tests invalidated.

- Grade 8 students will not be allowed to take the test again until the following school year.
- Grade 9 students will not have any additional opportunities to take the test after Grade 9.

Any student who refuses to put away or turn in a prohibited device will not be allowed to take the test. Possession of prohibited items at any time during the test administration, even if powered off, will result in the test being invalidated. Students will not be provided with an opportunity to make up the exam on a subsequent day.

4.0 WHAT HAPPENS AFTER I TAKE THE SHSAT?

4.1 Claims of Testing Irregularities

The NYCDOE works hard to ensure that the SHSAT is administered in a fair and consistent manner to all students. If, however, you believe there is a disturbance or problem during any part of the SHSAT, bring the matter to the immediate attention of the proctor. This may include a misprinted test booklet, undue distraction, or improper student behavior. The proctor will attempt to remedy the situation and may take a written statement from you at the end of the test.

You and your parents/guardians may also report any suspected proctoring or testing irregularities in one of the following ways:

- 1) By submitting an electronic request to HSEnrollment@schools.nyc.gov, or
- 2) By sending a written request via certified mail with proof of delivery to:

**Office of Student Enrollment
52 Chambers Street, Room 415
New York, NY 10007**

All requests must be submitted no later than **one week** after your test administration date.

For all claims, please include parent/guardian and student names, as well as telephone and/or email contact information. Any claims of testing irregularity postmarked later than one week after the test date may not be considered. Claims will be responded to on an individual basis.

Additional Remedy: If you are unsatisfied with our response to your appeal, you may appeal the NYCDOE's decision to the Commissioner of the New York State Education Department as stated in New York Education Law 310. Learn how to pursue such an appeal on the Commissioner's website at counsel.nysed.gov/appeals.

4.2 SHSAT Scoring and Test Results

There are three types of scores that result from the SHSAT scoring process. The ELA and Math sections of the SHSAT are treated separately in the scoring process until the end when the ELA and Math scores are added together for the final score, called the composite score.

- **Raw Score:** SHSAT scores are based on the number of correct answers marked on scored questions¹, which is called a raw score.
 - When the number correct is counted, every question counts the same—one raw score point.
 - It doesn't matter which particular questions you get right or wrong within each section (ELA and Math). You should not spend too much time on any one question because a question that you find 'harder' won't get you more raw score points than one that you find 'easier.'
 - There is no penalty for wrong answers.
- **Scaled Score:** Because there are several forms of the SHSAT, raw scores from different test forms cannot be compared directly. The test forms are developed to be as similar as possible, but they are not identical. To make valid score comparisons, a raw score must be converted into another type of score that takes into account the differences between test forms. The conversion from raw

¹ A small number of questions will be pre-designated for field testing and will not count toward a student's score.

score to scaled score is done separately for each section (ELA and Math). Two conversions are used to convert the ELA and Math raw scores into scaled scores. Those conversions are:

- **Calibration:** Calibration takes into account any small differences between different test forms.
- **Normalization:** Normalization adjusts scores to fit a normal (Gaussian) distribution.

Both calibration and normalization are non-linear. As a result, the raw scores and scaled scores are not proportional. That means that an increase in one raw score point does not always lead to the same increase in scaled score points. For example, in the middle of the range of scores, an increase of one raw score point may correspond to an increase of three or four scaled score points. At the top or bottom of the range of scores, an increase of one raw score point may correspond to 10–20 scaled score points. The closer you are to getting every question in a section right (or every question wrong), the more your scaled score goes up (or down) for that section. Consequently, you should use any extra time for your stronger section.

- **Composite Score:** The composite score is the sum of the ELA and Math scaled scores. The composite score is used to determine admission to a Specialized High School.

Most Important Things to Know about How Your Test Is Scored

- It does not matter which particular questions you get right or wrong within each section.
- A question that you find harder will not get you more raw score points than one that you find easier.



Do not spend too much time on any single question.

- There is no penalty for wrong answers.
- Your "best guess" is better than not answering at all.



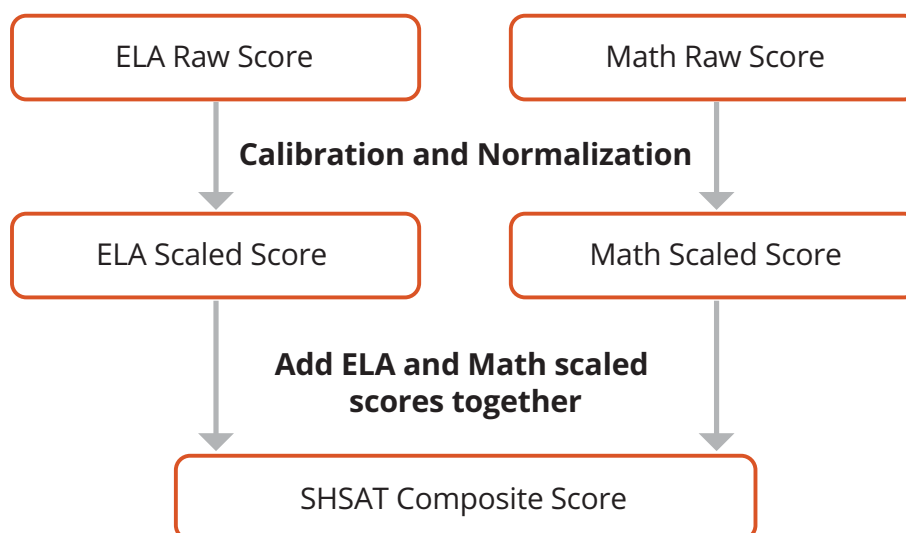
Fill in an answer for every question.

- The more questions you get right in each section (ELA and Math), the more your scaled score goes up for that section.
- It is likely that you will get more answers right in the section you generally perform better in at school.



If you have extra time remaining during test time, you should focus on the section you are strongest in.

The scoring process (calibration and normalization) for the SHSAT is redone every year specifically for that year's test. This ensures that a student's score is calculated and compared only with the other students who took the SHSAT in the same year. Because of this, SHSAT scores cannot be directly compared between years and there is no set minimum or maximum score. The maximum score on each section is usually around 350 and the maximum composite score is usually around 700; however, the actual maximum and minimum scores change from year to year.



To determine offers to a Specialized High School:

- All students take the SHSAT and list their school choices on the SHSAT answer sheet in their true preference order. Students only list the eight Specialized High Schools where admissions is based on the SHSAT. **See pages 31–33 for more information about listing choices.**
- All scores of the students who took the test are ordered from highest score to lowest score.
- The student with the highest composite score is placed in their first choice (highest listed school).
- Starting from the highest score on down, each student, in turn, is placed in that student’s highest listed school in which seats are still available. Therefore, if all the seats in a student’s first-choice school have been offered to students who scored higher, the student is placed in their second-choice school if seats are available. If all the seats in the student’s second-choice school have been offered to students who scored higher, the student is offered a seat in their third-choice school if there are still seats available, and so on. This process continues until there are no seats available in any of these eight Specialized High Schools.

If you take the SHSAT in fall 2020, you will receive your test results as part of your high school offer letter in March 2021. This letter will also include any high school, testing Specialized High Schools, and/or LaGuardia High School program offer(s), as well as information about next steps.



Click [here](#) to read the High School and Specialized High Schools Admissions Guide: turn to Section 9.0 to learn more about high school offers and Specialized High Schools results.

4.3 Request to View Your SHSAT Answer Sheet

After you get your high school offer letter, you can make an appointment to view your SHSAT answer sheet. Answer sheets are not available for distribution but can be reviewed at a scheduled appointment with the Office of Assessment.

You can request an appointment one of two ways:



At schools.nyc.gov/SHSAT by **April 1, 2021**.



By mail—send a letter to: Office of Assessment, 44-36 Vernon Blvd., Room 209, Long Island City, New York 11101. Letters must be postmarked no later than **April 1, 2021**.

In your request, please include:

- Student name, date of birth, and OSIS number
- Parent/guardian name, phone number, and email address

The Office of Assessment will provide information to schedule an appointment. You and at least one of your parents/guardians must be present at the appointment. You may request an interpreter when you schedule your appointment.

5.0 SAMPLE TESTS AND PRACTICE QUESTIONS

- ✓ There are two Grade 8 Sample Tests in this handbook.

If you are taking the Grade 9 test, take the Grade 8 Sample Tests and practice the Math questions on page 252 that are specific to the Grade 9 SHSAT. These questions cover topics that are introduced in the Grade 8 curriculum.

- ✓ Additional sample grid-in questions for Grade 8 are on page 262.
- ✓ Two sample SHSAT answer sheets are provided in the back of the handbook. Use one to mark your answers for Sample Test A, and use the other to mark your answers for Sample Test B.

You are now ready to try Sample Test Form A.

- Begin by carefully reading the Directions on pages 40 and 41 and filling out Side 1 of the answer sheet on page 269.
- Use Side 2 of the answer sheet to fill in your answers for Form A.
- When you are ready for Form B, use the second detachable answer sheet on page 272.

The New York City Department of Education
2021 Specialized High School Admissions Test

GENERAL DIRECTIONS

Student Name: _____

Identifying Information

Turn to Side 1 of the answer sheet.

Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.

Line 1: Read the statement and sign your name in the space following the word "signature." Do not print your name.

Line 2: Print today's date, using the numbers of the month, the day, and the year.

Line 3: Print your birth date with the number of the month first, then the number of the day, then the last two digits of the year. For example, a birth date of March 1, 2005, would be 3-1-05.

Grid 4: Print the letters of your first name, or as many as will fit, in the boxes. Write your name exactly as you did on the application. If you have a middle initial, print it in the box labeled "MI." Then print the letters of your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space or a hyphen in your name, fill in the circle under the appropriate blank or hyphen.

Make dark marks that completely fill the circles. If you change a mark, be sure to erase the first mark completely.

Grid 5: Carefully copy the order in which you ranked the specialized high schools on your Test Ticket onto Grid 5. If Grid 5 is not marked correctly, your admission to a specialized high school will be affected because your admission is based on the score you achieve and the order in which you rank your school preferences in this grid. The school choices indicated on your answer sheet are final.

Fill in one and only one circle for each school for which you wish to be considered. You may make as few as one or as many as eight choices. To increase your chances of being assigned to one of the specialized high schools, you are encouraged to make more than one choice. You **must** fill in a first choice school. Do not fill in a school more than once. Do not fill in the same school for each choice. Fill in only one circle in a row and only one circle in a column.

Grid 6: Complete the grid with your date of birth. Print the first three letters of the month in the first box, the number of the day in the next box, and the year in the last box. Then fill in the corresponding circles.

Grid 7:

1. Print the name of the school where you are now enrolled in the space at the top of the grid.
2. In the boxes marked "SCHOOL CODE," print the six-digit code that identifies your school and fill in the circle under the corresponding number or letter for each digit of the school code. (You can find your school code on your Test Ticket. If it is not there, tell the proctor, and the proctor will get the school code for you.)
3. If you attend a private or parochial school, fill in the circle marked "P."

Grid 8: Print your student ID number in Grid 8. You can find your student ID number on your Test Ticket. In the boxes, print your nine-digit student ID number. Below each box, fill in the circle containing the same number as in the box.

**DO NOT OPEN THIS BOOKLET
UNTIL YOU ARE TOLD TO DO SO.
TURN YOUR BOOKLET OVER TO THE BACK COVER.**

GENERAL DIRECTIONS, continued

Identifying Information, continued

Grid 9: In most cases, Grid 9 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

Turn your answer sheet to Side 2. Print your test booklet letter and numbers, and your name, first name **first**, in the spaces provided.

Marking Your Answers

Mark each of your answers on the answer sheet in the row of circles corresponding to the question number printed in the test booklet. Use only a Number 2 pencil. If you change an answer, be sure to erase it completely. Be careful to avoid making any stray pencil marks on your answer sheet. Each question has only one correct answer. If you mark more than one circle in any answer row, that question will be scored as incorrect.

SAMPLE ANSWER MARKS				
(A)	(B)	(C)	●	RIGHT
(X)	(B)	(C)	(D)	WRONG
(A)	(X)	(C)	(D)	WRONG
(A)	(B)	(C)	(D)	WRONG
(A)	(B)	●	●	WRONG

You can use your test booklet or the provided scrap paper to take notes or solve questions; however, your answers must be recorded on the answer sheet in order to be counted. **You will not be able to mark your answers on the answer sheet after time is up, and answers left in the test booklet will not be scored.**

DO NOT MAKE ANY MARKS ON YOUR ANSWER SHEET OTHER THAN FILLING IN YOUR ANSWER CHOICES.

Planning Your Time

You have 180 minutes to complete the entire test. **How you allot the time between the English Language Arts and Mathematics sections is up to you.** If you begin with the English Language Arts section, you may go on to the Mathematics section as soon as you are ready. Likewise, if you begin with the Mathematics section, you may go on to the English Language Arts section as soon as you are ready. If you complete the test before the allotted time (180 minutes) is over, you may go back to review questions in either section.

Be sure to read the directions for each section carefully. Each question has only one correct answer. Choose the best answer for each question. When you finish a question, go on to the next, until you have completed the last question. Your score is determined by the number of questions you answer correctly. **Answer every question, even if you may not be certain which answer is correct.** Don't spend too much time on a difficult question. Come back to it later if you have time. If time remains, you should check your answers.

Students must stay for the entire test session.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO



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A



1123351

1 2 3 4 5 A B C D E

Printed in the USA

ISD32507

SAMPLE TEST, FORM A
PART 1 — ENGLISH LANGUAGE ARTS

57 QUESTIONS

REVISING/EDITING
QUESTIONS 1-15 (PART A AND PART B)

REVISING/EDITING PART A

DIRECTIONS: Read and answer the following questions. You will be asked to recognize and correct errors so that the sentences or short paragraphs follow the conventions of standard written English. You may write in your test booklet as needed to take notes. You should reread relevant parts of the sentences or paragraphs, while being mindful of time, before marking the best answer for each question.

1. What is the best way to combine the sentences?

- (1) Scientists now believe that Jupiter may have as many as seventy-nine moons.
- (2) One of Jupiter’s moons is named Io.
- (3) Io has the greatest number of active volcanoes in the solar system.

- A. Io, which is one of Jupiter’s moons, has the greatest number of active volcanoes in the solar system, and scientists now believe that Jupiter may have as many as seventy-nine moons.
- B. Scientists now believe that Jupiter may have as many as seventy-nine moons, and one of them is named Io, which has the greatest number of active volcanoes in the solar system.
- C. Scientists now believe that Jupiter may have as many as seventy-nine moons, including one named Io, which has the greatest number of active volcanoes in the solar system.
- D. Io, a moon with the greatest number of active volcanoes in the solar system, is one of Jupiter’s moons, and scientists now believe that Jupiter may have as many as seventy-nine moons.

2. Which revision corrects the error in sentence structure in the paragraph?

In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian Institution, the museum is already the Smithsonian's third most popular site. Experts say that they expect this newest Smithsonian facility to welcome nearly 4 million visitors a year. The museum features more than 30,000 objects, including Muhammad Ali's boxing gloves and a dress sewn by Rosa Parks. A commemorative copy of the Emancipation Proclamation, written in 1863 during the presidency of Abraham Lincoln, is also on display at the museum.

- E. Institution, and the
- F. year, and the
- G. objects, which include
- H. Proclamation, which was written

3. Read this sentence.

The Appalachian Trail is a really long trail that a lot of people do each year.

Which revision of the sentence uses the most precise language?

- A. The Appalachian Trail is an extremely long trail that millions of people do each year.
- B. The Appalachian Trail is a 2,200-mile trail that more than a million people hike each year.
- C. The Appalachian Trail is a 2,200-mile trail that two million people hike each year.
- D. The Appalachian Trail is a lengthy trail that a couple million people do each year.

4. Which edit should be made to correct this sentence?

In 1962 the agile athletic Wilt Chamberlain became the first and only professional basketball player in the United States to score 100 points in a single game.

- E. Insert a comma after **agile**.
- F. Insert a comma after **first**.
- G. Insert a comma after **only**.
- H. Insert a comma after **States**.

5. Which pair of revisions need to be made in this paragraph?

(1) When coal was used to heat homes, it frequently left soot stains on the walls. (2) Brothers Cleo and Noah McVicker, who owned a cleaning product company created a doughy substance to help people remove this soot. (3) Over time, as natural gas becomes more common, people had little need for soot cleansers, and the McVickers' family company struggled to stay in business. (4) Then one day Joe McVicker, Cleo's son, learned that his sister-in-law had been using the substance for art projects in her classroom, so he remarketed the product as the toy known today as Play-Doh.

- A. Sentence 1: Delete the comma after **homes**.
Sentence 3: Change **becomes** to **became**.
- B. Sentence 1: Delete the comma after **homes**.
Sentence 4: Change **remarketed** to **had remarketed**.
- C. Sentence 2: Insert a comma after **company**.
Sentence 3: Change **becomes** to **became**.
- D. Sentence 2: Insert a comma after **company**.
Sentence 4: Change **remarketed** to **had remarketed**.

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REVISING/EDITING PART B

DIRECTIONS: Read each of the following two texts and answer the related questions. You will be asked to improve the writing quality of each text and to correct errors so that the texts follow the conventions of standard written English. You should reread relevant parts of each text, while being mindful of time, before marking the best answer for each question.

Find Time to Volunteer

(1) Many people believe that they gain a greater sense of purpose by giving their time to serve others. (2) These are the people who spend their free time volunteering at various places within the community. (3) Those who are served benefit from the work of these volunteers. (4) However, research shows that those who volunteer also receive benefits.

(5) For many students, this proposition may sound impossible. (6) Schoolwork can require hours of study each week. (7) Volunteering at a retirement center or homeless shelter requires both time and energy. (8) Extracurricular activities fill up after-school time. (9) Family obligations and part-time jobs often have to be worked into the schedule, too. (10) However, if students can find time to volunteer, even for a few hours a month, they may find that the benefits outweigh the scheduling difficulties.

(11) To begin with, students who engage in volunteer activities acquire valuable skills and experience, which can help them focus on potential fields of study and career options.

(12) Furthermore, when students list volunteer work on college applications, admissions counselors see applicants who care about making their community and college campus a better place.

(13) Volunteerism benefits more than students applying to college. (14) This type of experience is equally important for students moving directly into the workforce after high school.

(15) Volunteering demonstrates initiative, dedication, and a strong work ethic, qualities that companies value in a potential employee. (16) In a CareerBuilder study, 60 percent of managers regarded volunteerism as a significant asset when considering applicants.

(17) Students who volunteer undoubtedly make a positive investment in their future, but they also affect their present quality of life. (18) Studies have shown that volunteering is good for both the mind and the body. (19) Volunteering can boost mood levels and reduce anxiety. (20) According to the Mayo Clinic,¹ the feeling of doing something meaningful and the appreciation received from that action can reduce stress.

(21) Even the busiest of students can find a way to donate some time to a worthy cause.

(22) Though managing different commitments may seem overwhelming at times, students are sure to feel a sense of fulfillment in volunteerism.

¹**Mayo Clinic:** a nonprofit medical organization dedicated to treatment and research

- 6.** Which revision of sentence 2 uses the most precise language?
- E.** These are the people who spend their free time volunteering at animal shelters, helping with activities in community centers, or cleaning up parks.
 - F.** These are the people who spend their free time helping others in numerous ways at a variety of places, events, or organizations that need support.
 - G.** These are the people who spend their free time working at local establishments that help people, animals, or other groups in need of assistance.
 - H.** These are the people who spend a lot of time volunteering at places where they can help people in many ways.
- 7.** Which sentence should follow sentence 4 to introduce the main claim of the passage?
- A.** With that in mind, high school students should consider engaging in some form of regular volunteerism.
 - B.** Fortunately for students, these benefits are guaranteed to produce both immediate and long-term results.
 - C.** In fact, studies have confirmed that volunteerism can be beneficial for students, the family, and the community.
 - D.** For this reason, high school students should learn about how helping others can strengthen their communities.
- 8.** Which sentence is least relevant to the ideas presented in the second paragraph (sentences 5–10) and should be deleted?
- E.** sentence 6
 - F.** sentence 7
 - G.** sentence 8
 - H.** sentence 9

- 9.** Which of these would best follow sentence 12 and support the ideas presented in the third paragraph (sentences 11–12)?
- A.** These students show that they are likely to be responsible, reliable, and helpful young adults. Admissions counselors know that character traits like these will benefit the applicants as well as whomever they interact with.
 - B.** Volunteering can help students meet new people who can provide references and advice to the students when they are applying to colleges. It can also be an invaluable opportunity for students to meet possible future employers.
 - C.** The counselors hope that young adults who demonstrate this behavior will go on to volunteer during their college years, working on campus in student government and leadership programs or serving in the community at hospitals, schools, and homeless shelters.
 - D.** Many colleges are looking for students who are not just academically successful but who also work well with others and care about improving and serving surrounding communities.
- 10.** Which concluding sentence should replace sentence 22 to provide the best support for the argument presented in the passage?
- E.** In every city, there are homeless shelters, food pantries, youth centers, and political campaigns that depend on the support and commitment of hardworking young people.
 - F.** Clearly, students who volunteer will experience a host of benefits, such as learning new skills, meeting interesting people, opening up opportunities for the future, and gaining a sense of satisfaction.
 - G.** When students carefully evaluate their activities and prioritize volunteerism, they find a way to work it into their schedule and are soon encouraging their peers to do the same.
 - H.** Whether they are seeking admission to college, preparing to enter the workforce, or simply looking to reduce stress, high school students who volunteer can help themselves as much as they help others.

CONTINUE TO THE NEXT PAGE ►

The Benefits of Indoor Plants

(1) In an age of endless media content, it is easy to see why people might prefer to stay inside. (2) According to a study sponsored by the Environmental Protection Agency, Americans spend an average of 87 percent of their time indoors. (3) Scientists say that this separation between people and nature puts people at risk for physical and psychological issues.

(4) During the process of photosynthesis, plants convert carbon dioxide into oxygen and remove many harmful toxins from the air. (5) Spending prolonged periods of time indoors, away from plants, deprives people of these benefits. (6) Air that is not regularly detoxified can lead to a condition known as sick building syndrome. (7) This disorder first came to light in the 1970s when many office workers in the United States began to complain of unexplained flu-like symptoms. (8) Researchers determined the cause to be volatile organic compounds, or VOCs. (9) VOCs are harmful chemicals that are emitted by everyday objects such as carpet, furniture, cleaning products, and computers. (10) The NASA Clean Air Study found a simple way to remove a significant number of VOCs within a 24-hour period: add plants to indoor spaces.

(11) Adding plants to indoor spaces has psychological benefits too. (12) Research has long linked time spent in natural environments with increased energy and feelings of contentment. (13) While being outdoors is an excellent option for improving a person's mental health, recent research has indicated that encountering natural elements while indoors can also help. (14) To experience the maximum benefit of natural elements, experts suggest placing at least one live plant per 100 square feet of home or office space.

(15) Connecting with nature, even just by being near an indoor plant, is a significant factor in a person's well-being. (16) Sitting in front of an electronic screen all day isn't natural, and today's workers need to get up and get outdoors. (17) Richard Ryan, a psychology professor at the University of Rochester, puts it this way: "Nature is something within which we flourish, so having it be more a part of our lives is critical, especially when we live and work in built environments."

11. Which sentence should follow sentence 3 to best introduce the topic of the passage?

- A.** Placing plants in homes and offices can provide a healthy bridge between nature and the indoors.
- B.** It is important for people to realize that they need to spend more time near plants, whether indoors or out in nature.
- C.** For their personal health and well-being, people need to spend more time outdoors or bring the outdoors in.
- D.** Individuals with little connection to nature can experience illness, depression, and higher levels of stress.

- 12.** Which transition word or phrase should be added to the beginning of sentence 5?
- E.** As a result,
 - F.** Primarily,
 - G.** In contrast,
 - H.** Unfortunately,
- 13.** Which sentence could best follow sentence 13 to support the ideas in the third paragraph (sentences 11–14)?
- A.** A global study of 7,600 workers from sixteen countries revealed that employees who worked in spaces with natural elements, such as indoor plants, were more creative and productive than employees who worked in spaces without natural elements.
 - B.** Specifically, a study suggests that one well-known hotel is popular among guests because its owners have made a significant investment in landscaping and indoor plants known to have a relaxing effect.
 - C.** In fact, one recent study suggested that people who are routinely exposed to natural elements seem to increase their compassion for others, perhaps because that exposure generates compassion for the environment in which they live.
 - D.** According to a study that was conducted in 2003, plants can reduce the amount of noise that people perceive in indoor spaces with hard surfaces, just as adding carpet can make a room seem quieter.
- 14.** Which sentence presents ideas irrelevant to the topic of the passage and should be deleted?
- E.** sentence 11
 - F.** sentence 14
 - G.** sentence 15
 - H.** sentence 16
- 15.** Which concluding sentence should follow sentence 17 to best support the information presented in the passage?
- A.** Because indoor plants absorb the carbon dioxide in our air and release the oxygen we need to breathe, they are vital to our wholeness and wellness.
 - B.** Experts say that adding a Boston fern, a spider plant, or an aloe vera plant is a good place to start if you want to begin to incorporate nature into your home or office.
 - C.** More people should consider bringing natural elements inside to improve general wellness and reverse some of the negative effects of an indoor-centered society.
 - D.** As one study has confirmed, houseplants are a wise investment because they can remove almost 90 percent of the toxins in the air within the span of 24 hours.

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READING COMPREHENSION

QUESTIONS 16–57

DIRECTIONS: Read each of the following five texts, and answer the related questions. You may write in your test booklet as needed to take notes. You should reread relevant parts of each text, while being mindful of time, before marking the best answer for each question. Base your answers only on the content within the text.

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Champion of the Channel

- 1 In 1926 an editor at the *London Daily News* predicted that Gertrude Ederle, an American swimmer with eighteen world records and three Olympic medals, would fail in her attempt to swim across the English Channel. He claimed that “even the most uncompromising champion of the rights and capacities of women must admit that in contests of physical skill, speed and endurance they must remain forever the weaker sex.” Yet, at only nineteen years old, Ederle not only became the first woman to accomplish this feat, she also broke the men’s record by two hours. Gertrude Ederle’s triumphant swim across the English Channel was a testimony to her determination, innovative spirit, and passion for swimming.
- 2 Crossing the English Channel is a daunting task for any swimmer. At its narrowest point, the channel measures twenty-one miles across. Its icy waters hover around sixty degrees Fahrenheit, and its unruly tides and currents toss swimmers about like bobbing corks. Stinging jellyfish, seaweed, and floating debris from shipwrecks and lost cargoes present added hazards.
- 3 For decades the channel’s perils have defeated countless swimmers. Ederle, too, failed in her first attempt to cross the channel in 1925. Just six miles short of finishing, she became ill, and her coach had to haul her out of the water. Undeterred, Ederle decided to try again. Ederle knew that if she did not complete the challenge this time, she might never get the opportunity to set this record, because a rival female swimmer was preparing to make her second attempt at the crossing as well.
- 4 To prepare for the marathon swim, Ederle found ways to improve her equipment. She and her sister Meg discovered that melted candle wax perfectly sealed goggle edges, effectively waterproofing Ederle’s goggles against hammering waves. The sisters also designed a two-piece silk swimsuit for Ederle. During her first channel-crossing attempt she had worn a standard one-piece swimsuit that, after the lengthy hours of swimming across the channel, had stretched out, filling with water and creating drag, making an already challenging task almost insurmountable. Unlike the cumbersome typical bathing suit, this silk invention weighed little and allowed for easy movement.
- 5 On August 6, 1926, Ederle waded into the channel near Cape Gris-Nez, France. At first she shivered in the bone-chilling water even though she had covered her body in eight layers of grease for insulation. Her limbs felt stiff. Her strokes were irregular. Driving forward, she fought to clear her mind and find what she called her “sphere,” a place where the sea became her only companion and the shrieks of gulls and the humming of boat engines faded away. Using a new overhand stroke called the American crawl, Ederle eventually settled into a steady pace, briskly breaking through waves.
- 6 Throughout Ederle’s swim, two tugboats accompanied her. One carried newspaper reporters who wired dispatches of her progress to shore. The other, displaying a sign that read “This way, ole kid!” with an arrow pointing forward, transported her coach, family, and friends. Her coach played songs, such as “Yes, We Have No Bananas,” on a phonograph so that Ederle could time her strokes to the rhythm. Using a net, her coach also passed her baby bottles of broth for nourishment.
- 7 For hours Ederle swam, dodging debris with an amused smile. However, as she neared the English shore, a sudden fierce storm erupted. The tides and waves forced Ederle backward, and she

fought the stubborn swells for several hours. The salty water caused her tongue to swell and inflamed her ears. Yet Ederle felt indescribably happy as she churned through the sea. Finally, as she neared the English shore, the storm abated, and the tide turned. No longer fighting against her, the sea pushed her toward the shore and victory.

- 8 After fourteen hours and thirty-one minutes, Ederle, on wobbly legs, stepped onto the English shore. The waiting crowd roared, honked their automobile horns, blasted their tugboat whistles, and set off flares that flashed in the sky. Ederle had swum into history.
- 9 When Ederle returned to New York, she received a parade, where thousands of people shouted "Trudy!" Not only were everyday American citizens proud of Ederle, but she also inspired them to be more active. Over the next few years, more than 60,000 people credited her with motivating them to earn their American Red Cross swimming certificates. Gertrude Ederle's accomplishment proved to the world that with determination and passion, it was possible for a person to achieve his or her goals.

SOLO SWIMS ACROSS THE ENGLISH CHANNEL

Earliest Speed Records		
Year	Swimmer	Time
1875	Matthew Webb (M)	21 hours, 45 minutes
1923	Enrico Tiraboschi (M)	16 hours, 33 minutes
1926	Gertrude Ederle (F)	14 hours, 31 minutes
1926	Arnst Vierkotter (M)	12 hours, 38 minutes
Current Speed Records		
Year	Swimmer	Time
2006	Yveta Hlavacova (F)	7 hours, 25 minutes
2012	Trent Grimsey (M)	6 hours, 55 minutes

- 16.** What do the newspaper editor's comments in paragraph 1 reveal about the challenges Ederle faced in attempting her feat?
- E.** Regardless of her ability, being an American put Ederle at a serious disadvantage over a Londoner, who would be more familiar with the English Channel.
 - F.** At the time, Ederle still needed more training in order to succeed in the daunting task of swimming the English Channel.
 - G.** While Ederle could participate in athletic competition, some people were not comfortable with her attempt to swim the channel because no woman had ever attempted it before.
 - H.** In spite of her previous achievements, Ederle still experienced social as well as physical obstacles in attempting to swim the channel.

17. Which sentence is the best summary of the steps that Ederle took to prepare for her second attempt to swim across the English Channel?
- A. Working with her sister, Ederle waterproofed her goggles using melted candle wax to seal the edges and designed a two-piece silk bathing suit that was lightweight and would not stretch out during the long swim.
 - B. Ederle covered her body in numerous layers of grease for insulation and focused on finding her “sphere” during her swim.
 - C. Ederle began training with her coach, who played music while she swam to help her time her strokes to the music.
 - D. Ederle focused on developing better equipment than the standard swimsuit that proved cumbersome during her first attempt to cross the channel.

18. Read this sentence from paragraph 4.

During her first channel-crossing attempt she had worn a standard one-piece swimsuit that, after the lengthy hours of swimming across the channel, had stretched out, filling with water and creating drag, making an already challenging task almost insurmountable.

The word “insurmountable” is used to highlight

- E. how the bathing suit made it impossible for Ederle to make it across the channel.
 - F. how Ederle and her sister decided to improve Ederle’s swimming equipment in a creative way.
 - G. that the flaws in Ederle’s bathing suit made a difficult task even more complicated.
 - H. that the swimming equipment Ederle used needed to be custom made for her attempt.
19. Which statement describes how the author’s use of a problem-and-solution structure in paragraph 5 contributes to the development of ideas in the passage?
- A. Detailing the challenges presented by the cold channel waters highlights the effectiveness of Ederle’s training.
 - B. Describing Ederle’s physical difficulties during her swim provides evidence of the team effort required to ensure her safety.
 - C. Explaining the difficulties that arose early in the effort helps predict the additional obstacles that occurred during Ederle’s attempt.
 - D. Illustrating Ederle’s process of blocking out her discomfort shows that swimming the channel was both a mental and a physical challenge.

- 20.** Which sentence best supports the idea that Ederle succeeded in swimming across the channel because of her innovative approach to the challenge?
- E.** "Yet, at only nineteen years old, Ederle not only became the first woman to accomplish this feat, she also broke the men's record by two hours." (paragraph 1)
 - F.** "At first she shivered in the bone-chilling water even though she had covered her body in eight layers of grease for insulation." (paragraph 5)
 - G.** "Using a new overhand stroke called the American crawl, Ederle eventually settled into a steady pace, briskly breaking through waves." (paragraph 5)
 - H.** "No longer fighting against her, the sea pushed her toward the shore and victory." (paragraph 7)
- 21.** Paragraph 7 contributes to the development of a central idea of the passage by
- A.** illustrating that Ederle's physical strength and mental fortitude allowed her to stay focused on her goal.
 - B.** conveying that Ederle pushed herself to the edge of her physical capabilities in order to complete the swim.
 - C.** highlighting the impact the severe weather had on Ederle's emotions during her swim.
 - D.** emphasizing the surge of emotions Ederle felt as she came closer to achieving a personal goal.
- 22.** The idea that many people were interested in Ederle's attempt to swim the channel is illustrated in the passage mainly through the
- E.** information about Ederle's competition with another female swimmer who was also attempting to cross the channel.
 - F.** details about the reports of Ederle's progress during the swim and the celebration of her successful completion of the swim.
 - G.** details about how Ederle's historic swim contributed to an increase in the number of people learning how to swim.
 - H.** information about the resources Ederle used throughout her swim to maintain her motivation and stamina.

- 23.** Which sentence from the passage best conveys the author’s perspective regarding the impact of Ederle’s accomplishment?
- A.** “Undeterred, Ederle decided to try again.” (paragraph 3)
 - B.** “For hours Ederle swam, dodging debris with an amused smile.” (paragraph 7)
 - C.** “Yet Ederle felt indescribably happy as she churned through the sea.” (paragraph 7)
 - D.** “Ederle had swum into history.” (paragraph 8)
- 24.** The table supports the information in paragraph 9 mainly by
- E.** emphasizing that people have continued to swim across the channel and have significantly reduced the speed record.
 - F.** suggesting that Ederle inspired women to swim across the channel in an attempt to break the current speed record.
 - G.** revealing that other women competed with Ederle to set a record time for swimming across the English Channel.
 - H.** providing a comparison between the earliest channel-swimming records and the current record times.

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5 Reasons Physical Books Might Be Better Than E-Books

by Shaunacy Ferro

1 Though e-book¹ readers have become a more common sight around town, traditional books still have their evangelists.² According to *The New York Times*, e-book sales have been falling in 2015. Print definitely isn't dead. In fact, according to some research, it may actually be a better choice for some readers. While scientists are still trying to tease out exactly how digital reading affects us differently, here are five ways e-books might be inferior to their dead-tree cousins.

E-books can reduce reading comprehension.

2 In a study of middle schoolers, West Chester University researchers found that students who read on iPads³ had lower reading comprehension than when they read traditional printed books. They discovered that the kids sometimes skipped text in favor of interactive features in the e-books, suggesting that certain multimedia in children's e-books can be detrimental to the practice of reading itself. However, the researchers noted that some interactive features in e-books are designed to enhance comprehension, and that those might be more helpful than game-type interactive graphics.

Young kids can get distracted by e-books.

3 Similar results were found by a small study by the Joan Ganz Cooney Center that consisted of 32 kids reading e-books and print books with their parents. It found that "enhanced" e-books might be distracting. Kids who read enhanced e-books—ones with interactive, multimedia experiences—were more engaged with them physically, but in the end they remembered fewer narrative details than those who read print books or basic e-books.

You remember less about a book's timeline.

4 Another study of adults also found that e-books can be hard to absorb. The researchers asked 25 people to read a 28-page story on a Kindle⁴ and 25 to read the story in paperback, then asked the readers to put 14 events from the story in chronological order. Those who read the story on a Kindle performed worse on the chronology test than the book readers, though they performed about the same as print readers in other tests. Earlier research by the same scholars, from Stavanger University in Norway, found that Norwegian 10th graders also remembered more about texts if they read them in print rather than on a computer screen.

They're not great as textbooks.

5 While e-book textbooks are often cheaper (and easier to carry) than traditional door-stop⁵

¹**e-book:** an electronic book, a publication made available digitally for reading on a computer or other device

²**evangelists:** advocates or supporters

³**iPads:** tablet computers

⁴**Kindle:** device for reading e-books

⁵**door-stop:** a reference to the idea that some textbooks are large and heavy enough to hold a door open

textbooks, college students often don't prefer them. In some surveys of college kids, the majority of students have reported preferring print books. However, a 2012 study from the UK's National Literacy Trust of kids ages 8 to 16 found that more than 50 percent of children reported preferring screen reading.

They're tiring.

- 6 Staring at a lit screen can be tiring for the eyes and the brain. A 2005 study from Sweden found that reading digitally required a higher cognitive workload than reading on paper. Furthermore, staring at LED⁶ screens at night can disrupt sleep patterns. A 2014 Harvard study found that people who used e-readers with LED screens at night slept worse and were more tired the next day. So, if you're going to go for an e-book, go for one without the backlight.
- 7 The take-away message? If you're really trying to absorb material, you might want to go for a physical book. And if you're going to be up all night studying, turn off the backlight.
- 8 However, all this may not mean that reading on a Kindle is really going to melt your brain. For instance, reading an e-book on a computer is a much different experience than reading on a Kindle, which is specifically designed for consuming books. So, too, is playing with an interactive e-book on an iPad, compared to using a simpler e-book device that only presents the text, with no opportunities to click away into digital distractions.
- 9 And some studies have found that part of the difference between the way people absorb information from e-books versus paper might be due to approaching e-books differently—in one test, participants didn't regulate their study time with digital books like they did with paper texts, leading to worse performances. It's possible that our expectations of e-book reading—as well as the different designs of the digital reading experience on a computer or iPad or Kindle—might affect how we approach the text and how much effort we put into studying them. As generations of e-book readers evolve, and people become more accustomed to the idea of sitting down with a digital textbook, these factors could change—for better or for worse.

"5 Reasons Physical Books Might Be Better Than E-Books" by Shaunacy Ferro from MENTAL FLOSS, October 2, 2015. Copyright © 2015 Mental Floss, Inc.

⁶**LED:** Light-emitting diode; LEDs are often used as a backlight for electronic devices such as smart phones and tablets.

- 25.** The details in paragraph 1 convey a central idea of the passage by noting that
- A.** fewer people are buying e-books than printed books.
 - B.** printed books have some advantages over e-books.
 - C.** printed books rely on natural materials more than e-books.
 - D.** some people recommend buying printed books over e-books.

- 26.** Which evidence from the passage best supports the claim that “print definitely isn’t dead” (paragraph 1)?
- E.** Most college students prefer using paper books to using e-books.
 - F.** Scientists are still studying the effects of reading on a screen.
 - G.** Paper books are less disruptive to sleep patterns than e-books are.
 - H.** Reading on a screen can affect both the eyes and the brain.
- 27.** The studies described in paragraph 6 are important to the author’s observations in paragraphs 7 and 8 because the findings
- A.** show that the author has personal opinions to share beyond the ideas included in the studies.
 - B.** give the author the opportunity to reach practical conclusions about reading that are based on scientific evidence.
 - C.** highlight the author’s statement that digital reading experiences vary based on the individual and the device.
 - D.** support the author’s inference that more studies on more types of devices are needed.
- 28.** What is the best summary of the research into the effects of e-book reading?
- E.** E-books are disliked by college students and preferred by kids, and their interactive features are distracting.
 - F.** Some e-books can aid comprehension, but most e-book readers remember few details.
 - G.** E-books reduce reading comprehension and increase distraction, and they are tiring for the eyes and brain.
 - H.** Enhanced e-books engage children, but offer too many opportunities to be distracted by non-reading activities.

- 29.** Which sentence from the passage suggests that people in the future will likely choose e-books over print books?
- A.** “They discovered that the kids sometimes skipped text in favor of interactive features in the e-books, suggesting that certain multimedia in children’s e-books can be detrimental to the practice of reading itself.” (paragraph 2)
 - B.** “However, the researchers noted that some interactive features in e-books are designed to enhance comprehension, and that those might be more helpful than game-type interactive graphics.” (paragraph 2)
 - C.** “Kids who read enhanced e-books—ones with interactive, multimedia experiences—were more engaged with them physically, but in the end they remembered fewer narrative details than those who read print books or basic e-books.” (paragraph 3)
 - D.** “However, a 2012 study from the UK’s National Literacy Trust of kids ages 8 to 16 found that more than 50 percent of children reported preferring screen reading.” (paragraph 5)
- 30.** Which evidence in the passage is most relevant to the author’s claim that “our expectations of e-book reading . . . might affect how we approach the text” (paragraph 9)?
- E.** Studies found that students used their study time less productively with e-books than with print books.
 - F.** A study found that e-books enhanced with multimedia engaged children to interact physically.
 - G.** Adult readers recalled more details from a story read in a print book than in an e-book.
 - H.** One study found that people who read e-books had poor recall of chronological events.
- 31.** Which sentence from the passage best reveals the author’s point of view about e-books?
- A.** “While scientists are still trying to tease out exactly how digital reading affects us differently, here are five ways e-books might be inferior to their dead-tree cousins.” (paragraph 1)
 - B.** “While e-book textbooks are often cheaper (and easier to carry) than traditional door-stop textbooks, college students often don’t prefer them.” (paragraph 5)
 - C.** “For instance, reading an e-book on a computer is a much different experience than reading on a Kindle, which is specifically designed for consuming books.” (paragraph 8)
 - D.** “So, too, is playing with an interactive e-book on an iPad, compared to using a simpler e-book device that only presents the text, with no opportunities to click away into digital distractions.” (paragraph 8)

Snowy Mountains

by John Gould Fletcher

- Higher and still more high,
Palaces made for cloud,
Above the dingy city-roofs
Blue-white like angels with broad wings,
5 Pillars of the sky at rest
The mountains from the great plateau
Uprise.
- But the world heeds them not;
They have been here now for too long a time.
10 The world makes war on them,
Tunnels their granite cliffs,
Splits down their shining sides,
Plasters their cliffs with soap-advertisements,
Destroys the lonely fragments of their peace.
- 15 Vaster and still more vast,
Peak after peak, pile after pile,
Wilderness still untamed,
To which the future is as was the past,
Barrier spread by Gods,
20 Sunning their shining foreheads,
Barrier broken down by those who do not need
The joy of time-resisting storm-worn stone,
The mountains swing along
The south horizon of the sky;
25 Welcoming with wide floors of blue-green ice
The mists that dance and drive before the sun.

"Snowy Mountains" by John Gould Fletcher—Public Domain

- 32.** The description in the first stanza (lines 1–7) helps establish a central idea of the poem by
- E.** comparing the length of time the mountains have existed with the length of time the city has existed.
 - F.** contrasting the grandeur of the mountains with the structures in the city below them.
 - G.** implying that the mountains are a source of inspiration to the people in the city below.
 - H.** suggesting that the mountains are larger than the people in the city realize.

33. Read line 5 from the poem.

Pillars of the sky at rest

The line helps develop the theme of the poem by suggesting that the mountains

- A.** serve a noble and supportive purpose in the world.
- B.** attract the clouds with their strength and permanence.
- C.** remain untamed through the ages.
- D.** provide protection for the people.

34. How does isolating the word “Uprise” in line 7 affect the meaning of the poem?

- E.** It creates a contrast between the great plateau and the city buildings.
- F.** It reveals the similarity between the tall buildings in the city and the tall mountains on the horizon.
- G.** It creates a vision of the region before people developed the land.
- H.** It emphasizes that the mountains dominate the landscape.

35. How does the poet develop the speaker’s point of view in the second stanza (lines 8–14)?

- A.** by describing images of the mountains’ awe-inspiring size and strength
- B.** by illustrating the differences among the various ways humans can affect the natural environment
- C.** by criticizing society for taking careless, harmful courses of action against nature
- D.** by demonstrating how the mountains and the people are able to benefit from each other

- 36.** Which line from the poem best supports the idea that people have sacrificed priceless natural beauty in order to make a profit?
- E.** "Above the dingy city-roofs" (line 3)
 - F.** "The world makes war on them," (line 10)
 - G.** "Tunnels their granite cliffs," (line 11)
 - H.** "Plasters their cliffs with soap-advertisements," (line 13)
- 37.** Which detail from the poem reflects the speaker's view that people often fail to appreciate what is familiar?
- A.** "The mountains from the great plateau" (line 6)
 - B.** "They have been here now for too long a time." (line 9)
 - C.** "Splits down their shining sides," (line 12)
 - D.** "To which the future is as was the past," (line 18)
- 38.** How do the details in the third stanza (lines 15–26) most contribute to the development of a theme of the poem?
- E.** by reflecting nature's capacity to resist change
 - F.** by showing that nature is capable of influencing human will
 - G.** by exposing how a lack of awareness leads to nature's ruin
 - H.** by explaining why people must respect nature

39. Read lines 21–22 from the poem.

**Barrier broken down by those who do not need
The joy of time-resisting storm-worn stone,**

How do the lines help convey the speaker’s point of view?

- A. They suggest that the speaker wants to remove the obstacles that prevent others from experiencing the wonders of nature.
- B. They reveal the speaker’s opinion that some people are too busy to appreciate natural beauty.
- C. They suggest the speaker’s dismay that people destroy the natural landscape without understanding the ramifications of their actions.
- D. They explain that the speaker is confident that nature will never be fully destroyed by people.

40. Read lines 23–26 from the poem.

**The mountains swing along
The south horizon of the sky;
Welcoming with wide floors of blue-green ice
The mists that dance and drive before the sun.**

The personification in these concluding lines of the poem suggests that the mountains are

- E. gracious hosts who are untroubled by the actions of people.
- F. unaware of their coming destruction.
- G. lively entertainers who are amused by the everyday concerns of people.
- H. too proud to reveal their pain.

Excerpt from *A Voice in the Wilderness*

by Grace Livingston Hill

- 1 With a lurch the train came to a dead stop and Margaret Earle, hastily gathering up her belongings, hurried down the aisle and got out into the night.
- 2 It occurred to her, as she swung her heavy suit-case down the rather long step to the ground, and then carefully swung herself after it, that it was strange that neither conductor, brakeman, nor porter had come to help her off the train, when all three had taken the trouble to tell her that hers was the next station; but she could hear voices up ahead. Perhaps something was the matter with the engine that detained them and they had forgotten her for the moment.
- 3 The ground was rough where she stood, and there seemed no sign of a platform. Did they not have platforms in this wild Western land, or was the train so long that her car had stopped before reaching it?
- 4 She strained her eyes into the darkness, and tried to make out things from the two or three specks of light that danced about like fireflies in the distance. She could dimly see moving figures away up near the engine, and each one evidently carried a lantern. The train was tremendously long. A sudden feeling of isolation took possession of her. Perhaps she ought not to have got out until some one came to help her. Perhaps the train had not pulled into the station yet and she ought to get back on it and wait. Yet if the train started before she found the conductor she might be carried on somewhere and he justly blame her for a fool.
- 5 There did not seem to be any building on that side of the track. It was probably on the other, but she was standing too near the cars to see over. She tried to move back to look, but the ground sloped and she slipped and fell in the cinders,¹ bruising her knee and cutting her wrist.
- 6 In sudden panic she arose. She would get back into the train, no matter what the consequences. They had no right to put her out here, away off from the station, at night, in a strange country. If the train started before she could find the conductor she would tell him that he must back it up again and let her off. He certainly could not expect her to get out like this.
- 7 She lifted the heavy suit-case up the high step that was even farther from the ground than it had been when she came down, because her fall had loosened some of the earth and caused it to slide away from the track. Then, reaching to the rail of the step, she tried to pull herself up, but as she did so the engine gave a long snort and the whole train, as if it were in league against her, lurched forward crazily, shaking off her hold. She slipped to her knees again, the suit-case, toppled from the lower step, descending upon her, and together they slid and rolled down the short bank, while the train . . . ran giddily off into the night.
- 8 The horror of being deserted helped the girl to rise in spite of bruises and shock. She lifted imploring hands to the unresponsive cars as they hurried by her—one, two, three, with bright windows, each showing a passenger, comfortable and safe inside, unconscious of her need.
- 9 A moment of useless screaming, running, trying to attract some one's attention, a sickening sense

¹**cinders:** track bed made from the residue of burnt coal

of terror and failure, and the last car slatted itself past with a mocking clatter, as if it enjoyed her discomfort.

- 10 Margaret stood dazed, reaching out helpless hands, then dropped them at her sides and gazed after the fast-retreating train, the light on its last car swinging tauntingly, blinking now and then with a leer in its eye, rapidly vanishing from her sight into the depth of the night.
- 11 She gasped and looked about her for the station that but a short moment before had been so real to her mind; and, lo! on this side and on that there was none!
- 12 The night was wide like a great floor shut in by a low, vast dome of curving blue set with the largest, most wonderful stars she had ever seen. Heavy shadows of purple-green, smoke-like, hovered over earth darker and more intense than the unfathomable blue of the night sky. It seemed like the secret nesting-place of mysteries wherein no human foot might dare intrude. It was incredible that such could be but common sage-brush, sand, and greasewood wrapped about with the beauty of the lonely night.
- 13 No building broke the inky outlines of the plain, nor friendly light streamed out to cheer her heart. Not even a tree was in sight, except on the far horizon, where a heavy line of deeper darkness might mean a forest. Nothing, absolutely nothing, in the blue, deep, starry dome above and the bluer darkness of the earth below save one sharp shaft ahead like a black mast throwing out a dark arm across the track.
- 14 As soon as she sighted it she picked up her baggage and made her painful way toward it, for her knees and wrist were bruised and her baggage was heavy.
- 15 A soft drip, drip greeted her as she drew nearer; something plashing down among the cinders by the track. Then she saw the tall column with its arm outstretched, and looming darker among the sage-brush the outlines of a water-tank. It was so she recognized the engine's drinking-tank, and knew that she had mistaken a pause to water the engine for a regular stop at a station.

From A VOICE IN THE WILDERNESS by Grace Livingston Hill—Public Domain

- 41.** In paragraph 2, how does the phrase “when all three had taken the trouble to tell her” affect the tone in the first part of the excerpt?
- A.** It creates an accusatory tone by suggesting that Margaret believes that others are responsible for her problem.
 - B.** It introduces a defiant tone by suggesting that Margaret left the train early to prove a point.
 - C.** It suggests a frustrated tone by showing that Margaret feels confused by the inconsistent help offered by the railroad employees.
 - D.** It establishes an appreciative tone by showing that Margaret feels cared for by the railroad employees.

42. Which sentence from the excerpt best supports the idea that Margaret is unaccustomed to traveling to new places by train?
- E. "With a lurch the train came to a dead stop and Margaret Earle, hastily gathering up her belongings, hurried down the aisle and got out into the night." (paragraph 1)
 - F. "Perhaps something was the matter with the engine that detained them and they had forgotten her for the moment." (paragraph 2)
 - G. "Did they not have platforms in this wild Western land, or was the train so long that her car had stopped before reaching it?" (paragraph 3)
 - H. "She could dimly see moving figures away up near the engine, and each one evidently carried a lantern." (paragraph 4)

43. Read this sentence from paragraph 4.

She strained her eyes into the darkness, and tried to make out things from the two or three specks of light that danced about like fireflies in the distance.

The simile used in the sentence affects the tone of the paragraph by emphasizing a

- A. feeling of comfort as Margaret connects her unfamiliar surroundings with familiar images.
 - B. sense of lonesomeness as Margaret realizes that she is on her own in the wilderness.
 - C. sense of tranquility as Margaret is distracted from the urgency of her situation by the beauty of the night.
 - D. feeling of dread as Margaret regards the desolation of the land that surrounds her.
44. How do Margaret's earlier interactions with the conductor, brakeman, and porter affect the plot?
- E. They prompt Margaret to get off the train without further assistance.
 - F. They cause Margaret to think that she knows what to do once she gets off the train.
 - G. They compel Margaret to wonder whether the train has not pulled all the way into the station.
 - H. They lead Margaret to believe that train stations in rural areas lack platforms.

45. Read paragraph 9 from the excerpt.

A moment of useless screaming, running, trying to attract some one’s attention, a sickening sense of terror and failure, and the last car slatted itself past with a mocking clatter, as if it enjoyed her discomfort.

The imagery in this sentence conveys the

- A. growing irritation Margaret feels as she is ignored by people on the train.
- B. effort Margaret is making despite being physically unable to keep up with the train.
- C. anger that Margaret is experiencing as she watches the train leave without her.
- D. vulnerability Margaret feels as the train leaves her behind.

46. How does Margaret’s experience in paragraph 9 emphasize a theme of the excerpt?

- E. It confirms Margaret’s understanding that she cannot rely on help from anyone else.
- F. It leads Margaret to realize that her desire to change her situation is impractical.
- G. It causes Margaret to believe that her own actions led to an unfavorable outcome.
- H. It reinforces Margaret’s frustration about her lack of control over her surroundings.

47. Read paragraph 10 from the excerpt.

Margaret stood dazed, reaching out helpless hands, then dropped them at her sides and gazed after the fast-retreating train, the light on its last car swinging tauntingly, blinking now and then with a leer in its eye, rapidly vanishing from her sight into the depth of the night.

What does the figurative language in this sentence emphasize?

- A. the sense of doubt that Margaret experiences when she is deciding what to do next
- B. the anger that Margaret feels toward the people on the train who she expected to help her
- C. the embarrassment that Margaret feels when she imagines what others will think of her
- D. the hopelessness that Margaret feels when she accepts that the train is continuing on

48. How does paragraph 11 contribute to the plot of the excerpt?

- E. It reveals that the reality of the situation is different from Margaret’s assumptions.
- F. It illustrates that Margaret’s main problem is her own imagination.
- G. It shows that Margaret is surprised by the unexpected adventure she is about to undertake.
- H. It provides insight into how Margaret reacts to stressful situations.

Samuel Morse, an American inventor, is credited with creating the electronic telegraph, a communication device that allows users to send messages using a system of short and long pulses that represent letters, numbers, and punctuation. In 1844 the United States Congress passed the Telegraph Bill, which provided Morse with the funds to build an electric telegraph system.

Invention of the Telegraph

Earlier Signal Systems

- 1 Long before Samuel F. B. Morse electrically transmitted his famous message “What hath God wrought?” from Washington to Baltimore on May 24, 1844, there were signaling systems that enabled people to communicate over distances. Most were visual or “semaphore” systems using flags or lights. In the eighteenth century, such systems used an observer who would decipher a signal from a high tower on a distant hill and then send it on to the next station. The young American republic wanted just such a system along its entire Atlantic coast and offered a prize of \$30,000 for a workable proposal. The framers of this legislation¹ had no way of knowing that when they used the word “telegraph” to refer to this visual semaphore system, they would be offered an entirely new and revolutionary means of communication—electricity.

The Growth of an Idea

- 2 The idea of using electricity to communicate over distance is said to have occurred to Morse during a conversation aboard ship when he was returning from Europe in 1832. Michael Faraday’s recently invented electromagnet was much discussed by the ship’s passengers, and when Morse came to understand how it worked, he speculated that it might be possible to send a coded message over a wire. While a student at Yale College years before, he had written his parents a letter about how interesting he found the lectures on electricity. Despite what he had learned at Yale, Morse found when he began to develop his idea that he had little real understanding of the nature of electricity, and after sporadic attempts to work with batteries, magnets, and wires, he finally turned for help to a colleague at the University of the City of New York, Leonard D. Gale.
- 3 Gale was a professor of chemistry and familiar with the electrical work of Princeton’s Joseph Henry, a true pioneer in the new field. Well before Morse had his shipboard idea about a telegraph, Henry rang a bell at a distance by opening and closing an electric circuit. In 1831, he had published an article, of which Morse was unaware, that contained details suggesting the idea of an electric telegraph. Gale’s help and his knowledge of this article proved crucial to Morse’s telegraph system because Gale not only pointed out flaws in the system but showed Morse how he could regularly boost the strength of a signal and overcome the distance problems he had encountered by using a relay system Henry had invented. Henry’s experiments, Gale’s assistance, and, soon after, hiring the young technician Alfred Vail were keys to Morse’s success.

Obstacles and Opportunities

- 4 By December 1837, Morse had enough confidence in his new system to apply for the federal government’s appropriation, and during the next year he conducted demonstrations of his telegraph both in New York and Washington.

¹**legislation:** Telegraph Bill

- 5 However, when the economic disaster known as the Panic of 1837 took hold of the nation and caused a long depression, Morse was forced to wait for better times. It was during this period that Morse visited Europe again and tried not only to secure patent protection overseas but to examine competing telegraph systems in England. . . .
- 6 By 1843, the country was beginning to recover economically, and Morse again asked Congress for the \$30,000 that would allow him to build a telegraph line from Washington to Baltimore, forty miles away. The House of Representatives eventually passed the bill containing the Morse appropriation, and the Senate approved it in the final hours of that Congress’s last session. With President Tyler’s signature, Morse received the cash he needed and began to carry out plans for an underground telegraph line.

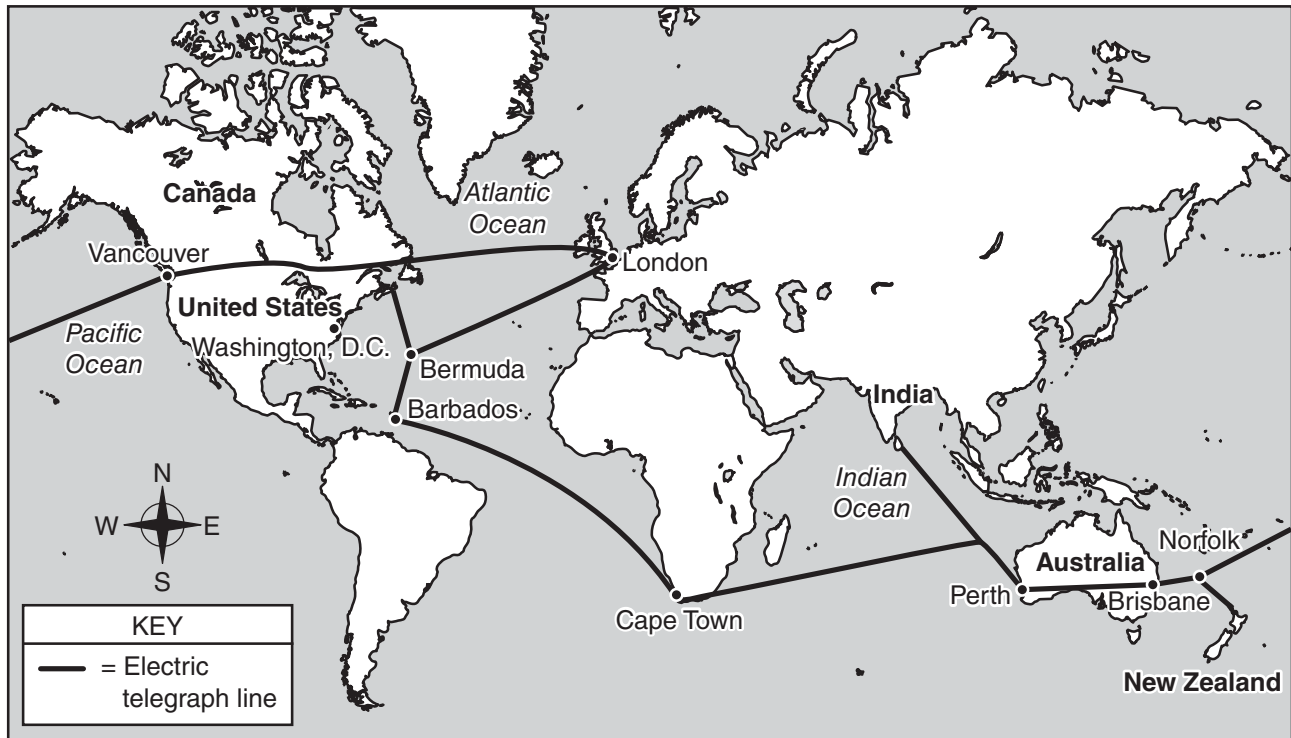
Realizing a Great Invention

- 7 Morse had hired the ingenious construction engineer Ezra Cornell to lay the pipe carrying the wire, and although Cornell did his job superbly, one of Morse’s partners, Congressman F. O. J. Smith, had purchased wire with defective insulation. Too much time had been wasted laying bad wire, and with the project on a rigid deadline, something had to be done quickly. Cornell suggested that the fastest and cheapest way of connecting Washington and Baltimore was to string wires overhead on trees and poles. The desperate Morse gave the go-ahead, and the line was completed in time for the dramatic and spectacularly successful link between the Supreme Court chamber of the Capitol building and the railroad station in Baltimore.
- 8 Soon, as overhead wires connected cities up and down the Atlantic coast, the dots-and-dashes method² that recorded messages on a long moving strip of paper was replaced by the operator’s ability to interpret the code in real time. . . . Telegraph lines soon extended westward, and within Morse’s own lifetime they connected the continents of Europe and America.

“Invention of the Telegraph”—Public Domain/Library of Congress

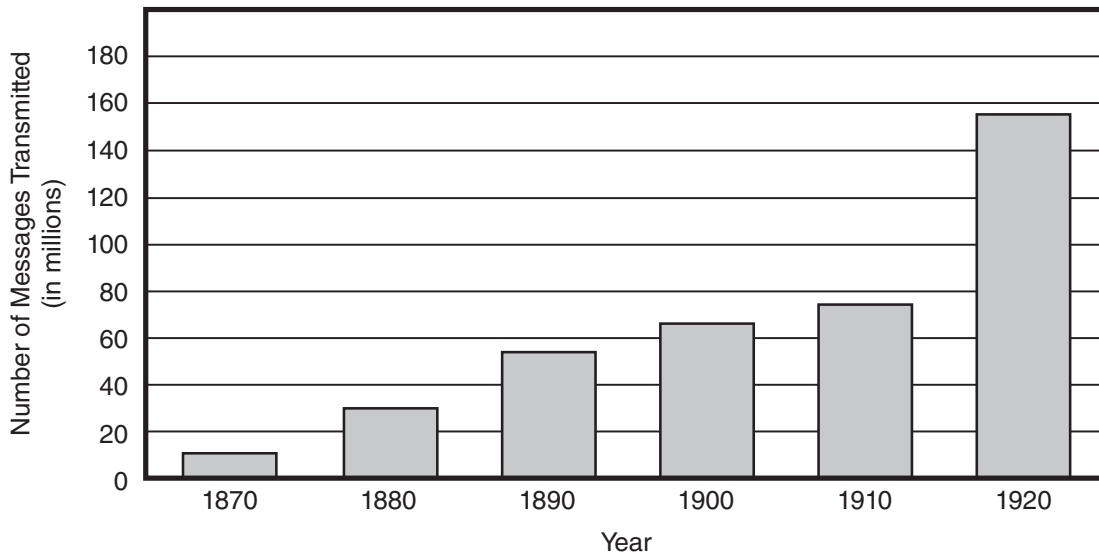
²**dots-and-dashes method:** the short and long pulses of Morse code that are sent and received by telegraph operators

BRITISH ALL-RED TELEGRAPH LINE, 1902



The first transatlantic electric telegraph message was sent in 1858, and by 1902 the British All-Red Line connected most of the world.

TELEGRAPH MESSAGES TRANSMITTED, 1870–1920



Source: U.S. Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 2*. Washington, D.C., 1975.

- 49.** Which statement describes how the author’s use of problem-solution in paragraph 2 contributes to the development of ideas in the passage?
- A.** Morse’s discussion on a ship about Faraday’s electromagnet reminded him of the Yale College lectures on electricity, which he had enjoyed but had not fully understood, inspiring him to learn more about electricity from his colleague Gale.
 - B.** Morse’s discouragement over his lack of knowledge of electricity prompted him to experiment with batteries, magnets, and wires, which led to the development of a new long-distance communication system.
 - C.** Morse’s difficulty in understanding how Faraday’s electromagnet worked was frustrating, and it pushed him to create a system for sending signals over wires.
 - D.** Morse’s longtime fascination was not enough to make up for his lack of knowledge about electricity, so he eventually sought help from Gale.
- 50.** Which statement describes how the author’s use of sequencing in paragraph 3 contributes to the overall structure of the passage?
- E.** It shows that several people were simultaneously attempting to create an electric telegraph.
 - F.** It shows how the invention of the electric telegraph depended on information and techniques discovered by others.
 - G.** It shows that multiple means of long-distance communication were being used at the same time.
 - H.** It shows how quickly long-distance communication changed from visual signals to electrical signals.
- 51.** The details of the section “The Growth of an Idea” convey a central idea of the passage by suggesting that
- A.** the collaborative efforts of colleagues resulted in successful communication over a wire.
 - B.** a great deal of interest and work was devoted to understanding how to use electricity to send signals.
 - C.** Faraday’s invention of the electromagnet inspired the invention of the telegraph.
 - D.** colleges like Yale played a great role in making new discoveries about electricity and its applications.

52. Read this sentence from paragraph 7.

The desperate Morse gave the go-ahead, and the line was completed in time for the dramatic and spectacularly successful link between the Supreme Court chamber of the Capitol building and the railroad station in Baltimore.

The words “dramatic” and “spectacularly” in the sentence convey a

- E. sense of relief and fulfillment that the line was finished.
- F. sense of wonder and of celebration that the telegraph line was accomplished.
- G. feeling of excitement about the future possibilities of the telegraph.
- H. feeling of confidence about being able to continue the work.

53. Which sentence is the best summary of how Morse obtained the funding necessary to build his telegraph system?

- A. Morse’s application for a federal grant was delayed until 1843, so he spent time traveling in Europe, where he concentrated on obtaining a patent for his system.
- B. Morse applied for a government grant that required both houses of Congress and the president to pass a bill awarding him \$30,000 for his telegraph project.
- C. Morse applied for a government appropriation and conducted telegraph demonstrations to show that his system could work, and after a delay caused by a financial depression, Congress approved the \$30,000 appropriation in 1843.
- D. Working with Gale and Vail allowed Morse to find flaws in Henry’s work and to develop his own ideas before applying for the federal government appropriation.

54. The idea that, in the mid-nineteenth century, the United States was mostly unaware of the possibilities of electricity is illustrated in the passage mainly through the

- E. description of the government’s initial desire to expand a semaphore signaling system that used either flags or lights along the Atlantic Coast.
- F. delay by the House of Representatives to pass the bill funding Morse’s telegraph line six years after he first applied for the appropriation.
- G. discussions of the newly invented electromagnet that sparked the idea of sending codes through wires.
- H. description of how an electric circuit could be closed to ring a bell at a distance.

- 55.** With which statement would the author most likely agree?
- A.** Morse’s telegraph was successful because the wires were strung above ground rather than underground as originally planned.
 - B.** Understanding the importance of Morse’s telegraph requires detailed knowledge of electrical systems.
 - C.** The implementation of Morse’s telegraph system was overly influenced by economic factors.
 - D.** Morse’s invention of the telegraph made a great stride toward better connecting people across the United States and across the world.
- 56.** How does the map provide additional support for a central idea of the passage?
- E.** by demonstrating that Morse’s telegraph system greatly exceeded the limitations of previous long-distance communication systems
 - F.** by indicating that Morse was lacking foresight by seeking a patent only in North America
 - G.** by proving that Gale’s advice helped Morse extend the telegraph’s range much farther than first thought possible
 - H.** by showing that the Morse telegraph had a surprisingly immense influence across the world
- 57.** How does the graph support the ideas in paragraph 8?
- A.** It indicates how welcome the improvement of long-distance communication was in the United States.
 - B.** It provides evidence of the dramatic increase in the number of telegraph messages as Morse’s system expanded across the United States.
 - C.** It reveals that by the twentieth century millions of people had used the telegraph despite earlier hesitations about the system.
 - D.** It shows how improvements that allowed Morse code to be read in real time made relaying telegraph messages faster and increased the system’s usage.

PART 2 — MATHEMATICS

57 QUESTIONS

IMPORTANT NOTES

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
 - (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be determined from the information given.
 - (3) Assume that a diagram is in one plane unless the question specifically states that it is not.
 - (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, lines on a graph that appear to be parallel can be assumed to be parallel. This is also true for concurrent lines, straight lines, collinear points, right angles, etc.
 - (5) Reduce (simplify) all fractions to lowest terms.
-

CONTINUE TO THE NEXT PAGE ►

GRID-IN QUESTIONS

QUESTIONS 58–62

DIRECTIONS: Solve each problem. On the answer sheet, write your answer in the boxes at the top of the grid. Start on the left side of each grid. Print only one number or symbol in each box. Under each box, fill in the circle that matches the number or symbol you wrote above.

- Do not fill in a circle under an unused box.
 - Do not leave a box blank in the middle of an answer.
-

58. Simplify:

$$-3.8 + 2.3 - (-1.1)$$

60. A juice mixture contains $\frac{3}{16}$ gallon of apple juice and $\frac{3}{40}$ gallon of cranberry juice. How many gallons of apple juice per gallon of cranberry juice does the mixture contain? (Express your answer as a decimal.)

59. Angle M and angle R are supplementary. The measure of angle R is 5 times the measure of angle M. What is the measure of angle R in degrees?

- 61.** Mr. Chan's lawn grows $2\frac{1}{8}$ inches every 2 weeks. He mows his lawn every 2 weeks and cuts off the top $1\frac{3}{4}$ inches of lawn. If Mr. Chan's lawn was 4 inches tall at the beginning of the season, how many inches tall, in decimal form, is Mr. Chan's lawn after 8 weeks?

62.

RESULTS FROM SURVEY OF 110 FAMILIES

Number of Children in the Family	Number of Families
0	45
1	32
2	19
3	8
4	6

The table above shows the number of children in each of 110 families. What is the median number of children in these families?

MULTIPLE CHOICE QUESTIONS

QUESTIONS 63–114

DIRECTIONS: Solve each problem. Select the best answer from the choices given. Mark the letter of your answer on the answer sheet. When you are solving problems, you can write in the test booklet or on the scrap paper given to you.

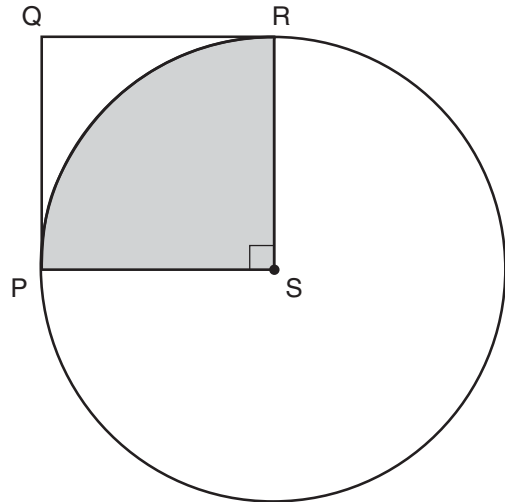
63. Mr. Jones has 550 goats, which is 10% more than Mr. King has. How many **more** goats does Mr. Jones have than Mr. King?

- A. 50
- B. 55
- C. 495
- D. 500

64. If $\frac{2y}{x} - \frac{y}{2x} = \frac{\square}{2x}$ and $x \neq 0$, what expression is represented by \square ?

- E. y
- F. $2y$
- G. $3y$
- H. $4y$

65.



In the figure above, PQRS is a square. Point S is the center of the circle, and points P and R are on the circle. If the area of the square is 4 square centimeters, what is the area, in square centimeters, of the shaded quarter of the circle?

- A. $\frac{\pi}{4}$
- B. π
- C. 2π
- D. 4π

66. A list of consecutive integers begins with m and ends with n . If $n - m = 66$, how many integers are in the list?

- E. 2
- F. 33
- G. 66
- H. 67

67. Simplify:

$$\frac{\left(\frac{39(x-3)}{3}\right) + 39}{13}$$

- A. x
- B. $x - 2$
- C. $13x - 36$
- D. $x + \frac{36}{13}$

68. Jar 1 and Jar 2 each contain $\frac{1}{2}$ cup of water. If $\frac{1}{4}$ of the water in Jar 1 is poured into Jar 2, how much water is now in Jar 2?

- E. $\frac{1}{8}$ cup
- F. $\frac{1}{4}$ cup
- G. $\frac{5}{8}$ cup
- H. $\frac{3}{4}$ cup

69. If n is a whole number, and 0.01 is between $\frac{1}{n}$ and $\frac{1}{n+2}$, what is the value of n ?

- A. 0
- B. 1
- C. 2
- D. 99

70. When asked a certain question in a poll, 72% of the people polled answered yes. If 56 people did **not** answer yes to that question, what is the total number of people who were polled?

- E.** 78
- F.** 128
- G.** 144
- H.** 200

71. A museum has a room in the shape of a rectangle. The area of the floor is 960 square feet. In a scale drawing of the museum, 1 inch = 20 feet. If the length of the room is 2 inches in the scale drawing, what is the width of this room in the scale drawing?

- A.** $1\frac{1}{5}$ in.
- B.** $1\frac{1}{4}$ in.
- C.** 24 in.
- D.** 40 in.

72. A program on a computer randomly generates a sequence of whole numbers from 1 to 9, inclusive. If the computer generates a sequence of 300 numbers, what is the best prediction of the number of odd numbers in the sequence?

- E.** 120
- F.** 133
- G.** 150
- H.** 167

73. A truck rental company charges a one-time fee of \$40 plus \$1 per mile driven. Dalia rented a truck and used a coupon for 20% off the total rental cost. After the coupon was applied, she spent a total of \$60. How many miles did she drive?

- A.** 8
- B.** 20
- C.** 32
- D.** 35

74. The probability of drawing a red candy at random from a bag of 25 candies is $\frac{2}{5}$. After 5 red candies are removed from the bag, what is the probability of randomly drawing a red candy from the bag?

E. 0

F. $\frac{1}{10}$

G. $\frac{1}{5}$

H. $\frac{1}{4}$

75. Each number in a sequence is formed by doubling the previous number and then adding 1. If the 9th number in the sequence is 63, what is the 10th number minus the 7th number?

A. 96

B. 111

C. 112

D. 127

76. 8.9, 8.2, 8.5, 9.0, 8.4, 8.6, 8.8

At a skating championship, there are seven judges who each award a score for each skater's performance. The highest and lowest scores given to each skater are discarded, and the mean of the remaining scores is then calculated and reported as the skater's final score. What is the final score for the skater who received the scores shown above from the judges?

E. 8.60

F. 8.62

G. 8.64

H. 8.70

77. A piece of wood that is $4\frac{1}{2}$ feet long is cut into 2 pieces of different lengths. The shorter piece has a length of x feet. Which inequality expresses all possible values of x ?

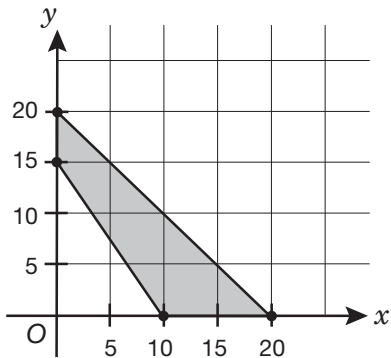
A. $0 < x < 2\frac{1}{4}$

B. $0 \leq x \leq 2\frac{1}{4}$

C. $0 < x < 4\frac{1}{2}$

D. $2\frac{1}{4} < x < 4\frac{1}{2}$

78.



What is the area, in square units, of the shaded region shown in the figure above?

- E. 75
- F. 125
- G. 150
- H. 200

79.

$$F = \frac{9}{5}C + 32$$

Yesterday in Centerville, the highest Fahrenheit temperature, F , was 86° , and the lowest was 68° . What was the difference between these temperatures, in degrees Celsius, C ?

- A. 10.0° C
- B. 15.0° C
- C. 20.0° C
- D. 32.4° C

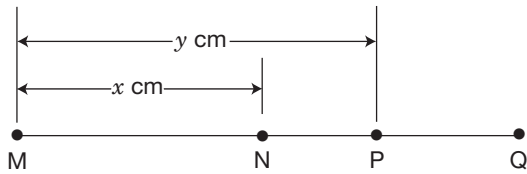
80. Let x be an odd number. In terms of x , what is the sum of the two even numbers closest to x ?

- E. x
- F. $2x$
- G. $2x - 2$
- H. $2x - 4$

81. In 1991, the total public debt of the United States was about \$3,600,000,000,000. In that year, there were about 250,000,000 people in the United States. Which amount is the best estimate of the public debt per person for that year?

- A. \$1,440
- B. \$14,400
- C. \$144,000
- D. \$14,400,000,000

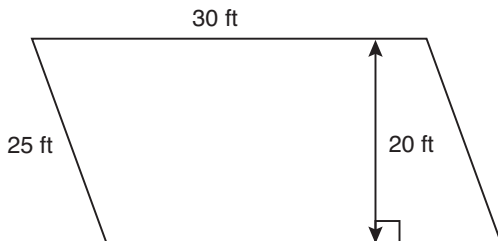
82.



In the figure above, N is the midpoint of \overline{MQ} . Which segment has length $(2x - y)$ centimeters?

- E. \overline{PQ}
- F. \overline{NP}
- G. \overline{MQ}
- H. \overline{MP}

83.



What is the area of the parallelogram shown above?

- A. 750 sq ft
- B. 600 sq ft
- C. 500 sq ft
- D. 300 sq ft

84. On Wednesday, a baker produced 100 more loaves of bread than were produced on Tuesday. On Thursday, the baker produced 50 fewer loaves than were produced on Tuesday. If the total number of loaves produced on all three days was 230, how many loaves were produced on Wednesday?

- E. 60
- F. 80
- G. 120
- H. 160

85.

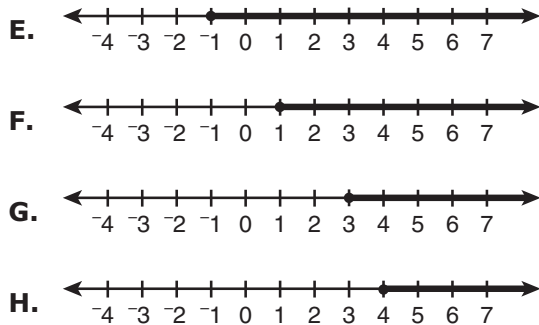
QUIZ SCORES IN
MRS. ARCH'S CLASS

Quiz Score	Number of Students
60	9
70	7
80	4
90	5
100	3

In the table above, what is the mean quiz score?

- A. 60
- B. 70
- C. 75
- D. 80

86. Which graph represents the solution to the inequality $x + 4 \geq 3$?



87. The reciprocal of $\frac{1}{4}$ is added to the reciprocal of 3. What is the reciprocal of this sum?

- A. $\frac{3}{13}$
- B. $\frac{3}{4}$
- C. $\frac{4}{5}$
- D. $\frac{13}{4}$

88. Nura made a square poster with a side length of 13 inches. Latrice made a square poster with a side length of 15 inches. What is the difference, in square inches, between the area of Latrice's poster and the area of Nura's poster?

- E. 56
- F. 8
- G. 4
- H. 2

89.

INGREDIENTS FOR
4 SERVINGS OF OATMEAL

Ingredient	Cups
Oats	$\frac{2}{3}$
Water	$3\frac{1}{4}$

The table shows the cups of ingredients used to make 4 servings of oatmeal. What is the unit rate for cups of oats per cup of water?

- A. $\frac{1}{6}$
- B. $\frac{8}{39}$
- C. $\frac{13}{16}$
- D. $\frac{13}{8}$

90. If $\left(\frac{3}{5} - \frac{1}{2}\right)x = \frac{1}{4} + \frac{2}{3}$, what is the value of x ?

- E. $\frac{11}{120}$
- F. $\frac{2}{7}$
- G. $\frac{5}{6}$
- H. $\frac{55}{6}$

91. In a certain state, the sales tax rate increased from 7.0% to 7.5%. What was the increase in the sales tax on a \$200 item?

- A. \$1
- B. \$10
- C. \$14
- D. \$15

92. Evaluate:

$$|(-8) - 12 + (-17) - (-31)| - |24|$$

- E. -30
- F. -18
- G. 18
- H. 44

93.

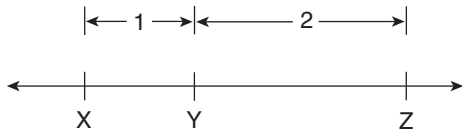
CELL PHONE SALES
BY COLOR

Color	Percent of Cell Phones Sold
White	$8k$
Black	30
Blue	$30 - 2k$
Red	$k + 5$
Total	100

The table above shows cell phone sales by color. What percent of the cell phones sold were blue?

- A. 18%
- B. 20%
- C. 22%
- D. 28%

94.



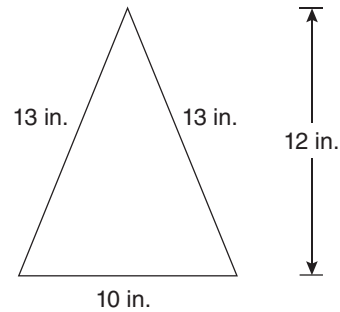
On the number line above, the distance between X and Y is 1 unit, and the distance between Y and Z is 2 units. What is the distance between Y and the midpoint of X and Z?

- E. $\frac{1}{2}$
- F. 1
- G. $1\frac{1}{2}$
- H. 3

95. By what percent did the price of a cup of coffee increase if its price was increased from \$1.25 to \$1.35?

- A. 7%
- B. 8%
- C. 10%
- D. 12%

96.



Raquel is cutting out pieces of cardboard to make a pyramid. She will use a square piece for the base and identical triangular pieces for the sides. The figure above shows the dimensions of the triangle for each side. What will be the total surface area, in square inches, of the pyramid, including the square base?

- E. 280
- F. 295
- G. 340
- H. 360

97. The price of a sandwich was raised from \$6.25 to \$6.75. What was the percent increase in the price?

- A. 5%
- B. 8%
- C. 7%
- D. 50%

98. Terrell played 5 computer games and earned a mean score of 8 points per game. If his mean score for the first 4 games was 7 points per game, how many points was his score in the fifth game?

- E.** 9
- F.** 11
- G.** 12
- H.** 14

99. Lian bought enough oranges to fill 4 bags. Each bag contains 8 oranges. The total cost was \$11.52. At that rate, how much would Lian pay for 42 oranges?

- A.** \$17.28
- B.** \$15.12
- C.** \$15.02
- D.** \$12.52

100. $3.6 \div 0.018 =$

- E.** 0.005
- F.** 0.648
- G.** 20
- H.** 200

101. A tank with a 500-gallon capacity currently contains 75 gallons of water. Additional water is poured into this tank at a rate of 5 gallons per minute. After 45 minutes of adding water, what percentage of the tank's total capacity will be filled? (Assume that there is no loss of water from the tank.)

- A.** 45%
- B.** 55%
- C.** 60%
- D.** 70%

102. Misha wants to use ribbon to make 2 straps for a backpack. The ribbon costs \$5.00 a yard. If each strap requires $1\frac{1}{4}$ yards of ribbon, how much will Misha pay for the ribbon (not including tax)?

- E.** \$4.00
- F.** \$6.25
- G.** \$11.25
- H.** \$12.50

103. A graph shows the proportional relationship between the number of test questions a student gets correct, x , and the student's test score, y . The ordered pair $\left(1, \frac{5}{4}\right)$ is on the graph. What does the y -coordinate of the ordered pair represent in this relationship?

- A.** The test will last $1\frac{1}{4}$ hours.
- B.** Each test question is worth $1\frac{1}{4}$ points.
- C.** An average student can answer 5 questions in 4 minutes.
- D.** A student who answers 5 questions correctly will earn 4 points.

104. In a survey of 200 adults in the town of Waskegon, 45 reported reading the online version of the *Waskegon Bulletin* the previous day. If 25,000 adults live in Waskegon, which number is the best estimate of the number of adults who read the online version of the *Waskegon Bulletin* the previous day?

- E.** 5,600
- F.** 9,000
- G.** 11,300
- H.** 24,800

105. A hiker plans on hiking 17 miles in 3 days. Which equation describes the relationship between the number of days hiked, x , and the number of miles traveled, y ?

- A.** $y = \frac{3}{17}x$
- B.** $y = 3x$
- C.** $y = \frac{17}{3}x$
- D.** $y = 17x$

106. Carolyn walked 3 miles from her house to the library and then $2\frac{1}{2}$ miles farther to the grocery store. Returning home by the same route, she walked $1\frac{2}{3}$ miles before stopping at a friend's house. How many miles did Carolyn have left to walk home?

- E.** $3\frac{5}{6}$
- F.** $4\frac{1}{6}$
- G.** $4\frac{2}{3}$
- H.** $7\frac{1}{6}$

107. A child grows $1\frac{1}{4}$ inches in $\frac{1}{3}$ of a year.
What would be his yearly growth rate in inches per year?

- A. $\frac{5}{12}$
- B. $3\frac{1}{4}$
- C. $3\frac{3}{4}$
- D. $4\frac{1}{4}$

108. $3(0.01) - 3(0.1) =$

- E. -0.33
- F. -0.27
- G. 0
- H. 0.33

109. What is the value of
 $10\frac{1}{2} + \left(-5\frac{1}{3}\right) - \left(-2\frac{3}{4}\right)?$

- A. $2\frac{5}{12}$
- B. $7\frac{11}{12}$
- C. $13\frac{1}{12}$
- D. $18\frac{7}{12}$

110. Carlos has \$350 in a savings account that earns 5% simple interest each year. How much will he have in the account after 1 year, if there is no money withdrawn?

- E. \$17.50
- F. \$175.00
- G. \$367.50
- H. \$525.00

111. The probability of an event occurring is 0.05. What is the chance that the event will occur?

- A.** likely
- B.** unlikely
- C.** impossible
- D.** neither likely nor unlikely

112. The table below shows the number of cups of red paint and blue paint used to make a purple paint mixture.

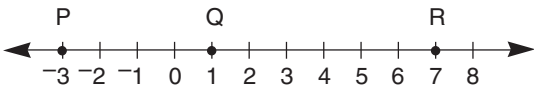
PURPLE PAINT

Cups of Red Paint	Cups of Blue Paint
1	1.5
4	6
11	y

Based on the relationship between the number of cups of red paint and the number of cups of blue paint, what is the value of y ?

- E.** 10.5
- F.** 13
- G.** 16.5
- H.** 24

113.



On the number line above, what is the distance, in units, between the midpoint of \overline{PQ} and the midpoint of \overline{QR} ?

- A. 3
- B. 4
- C. 5
- D. 6

114. An ice cream shop sells 16 cups of ice cream for \$48 and 4 cups for \$12. There is a proportional relationship between the number of cups of ice cream and the cost. What is the constant of proportionality for this relationship?

- E. 3 cups per dollar
- F. 3 dollars per cup
- G. 4 cups per dollar
- H. 4 dollars per cup

THIS IS THE END OF THE TEST.
IF TIME REMAINS, YOU SHOULD CHECK
YOUR ANSWERS. BE SURE THAT THERE
ARE NO STRAY MARKS, PARTIALLY
FILLED ANSWER CIRCLES, OR
INCOMPLETE ERASURES ON YOUR
ANSWER SHEET. ■

REVISING/EDITING PART A

1. The question asks for the best way to combine the sentences.
 - A. Incorrect. Although the sentence incorporates the ideas presented in the three original sentences, it is incorrect because the combination suggests an incorrect relationship between the ideas. By beginning with “Io,” the sentence places emphasis on the moon and the detail about the number of active volcanoes rather than the key idea that “scientists now believe that Jupiter may have as many as seventy-nine moons.” Since Io is an example of one of Jupiter’s moons, the details about Io should follow and be subordinate to the main clause, which provides new information about the number of Jupiter’s moons in general.
 - B. Incorrect. Although the sentence incorporates all three ideas from the original sentences and correctly places the detail about the number of active volcanoes on Io in a dependent clause, this option is incorrect because it presents an imprecise relationship between the ideas. By using the conjunction (connecting word) “and,” the sentence construction suggests that scientists “now believe” not just that “Jupiter may have as many as seventy-nine moons” but that “one of them is named Io,” instead of presenting Io as an example of one of Jupiter’s moons.
 - C. **CORRECT.** The sentence is the best way to combine these sentences because it uses a complex sentence to present ideas clearly and precisely, and it shows the relationship between the ideas in the three sentences. The sentence starts by stating the number of moons scientists now believe Jupiter to have and then specifies that one of those moons is named Io. The dependent clause “which has the greatest number of active volcanoes in the solar system” immediately follows the word “Io” to provide additional information about the moon. A dependent clause contains a subject (“which,” referring to “Io”) and a verb (“has”) but is not a complete sentence on its own.
 - D. Incorrect. The sentence incorporates the key ideas from the three original sentences, but its structure does not accurately present the relationship between these ideas. The beginning of the sentence includes the detail about Io having “the greatest number of active volcanoes in the solar system” before specifying that Io is one of the seventy-nine moons of Jupiter. The presentation of the details about Io at the beginning lessens the emphasis of the key idea that “scientists now believe that Jupiter may have as many as seventy-nine moons.”

2. The question asks for the correction of an error in sentence structure in the paragraph.
- E. **CORRECT.** The first sentence is a run-on sentence because both clauses—"In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian Institution" and "the museum is already the Smithsonian's third most popular site"—are independent clauses, and independent clauses should not be combined without the use of a conjunction and a comma. The revision in this option adds the word "and" before the comma, which corrects the run-on.
 - F. Incorrect. The revision does not correct an error in sentence structure, since there are independent clauses on both sides of the period.
 - G. Incorrect. Adding the words "which include" rather than the word "including" after the comma does not correct an error in sentence structure. The sentence is correct as written.
 - H. Incorrect. Revising the wording in the underlined portion of the sentence to "which was written" from "written" does not correct a structural error. No edits are needed to correct the wording in the sentence.
-
3. The question asks for the revision of the sentence that uses the most precise language.
- A. Incorrect. The word "extremely" does not specify the precise length of the trail (2,200 miles); "millions" is less precise than the specific number of people who hike the trail each year (two million); and the verb "do" imprecisely describes the purpose of visiting the trail (hiking).
 - B. Incorrect. While the revision specifies the precise length of the trail and the verb "hike" precisely describes the purpose of visiting the trail, "more than a million" is less precise than the specific number of people who hike the trail each year (two million).
 - C. **CORRECT.** The length of the trail (2,200 miles), the specific number of people who hike the trail each year (two million), and the action of the visitors (hiking) are clear and precise in this revision of the sentence.
 - D. Incorrect. The word "lengthy" is less precise than specifying the actual length of the trail (2,200 miles); "a couple million" is less precise than the specific number of people who hike the trail each year (two million); and the verb "do" imprecisely describes the purpose of visiting the trail (hiking).

4. The question asks which edit should be made to correct the sentence.
- E. CORRECT.** The sentence in the box needs a comma to separate the coordinate adjectives. Coordinate adjectives describe characteristics of the same noun or subject and are connected with a comma or "and." This option is the only one that places a comma where it is needed, between the coordinate adjectives "agile" and "athletic."
 - F.** Incorrect. The option incorrectly adds a comma in the middle of the adjectival phrase "first and only," which modifies, or gives additional information about, "professional basketball player."
 - G.** Incorrect. The option incorrectly adds a comma between two adjectives that are not coordinate adjectives. "Only" is part of the adjectival phrase "first and only" and is modifying "professional basketball player."
 - H.** Incorrect. The option is incorrect because a comma is not needed to set off the phrase "to score 100 points in a single game."
-
5. The question asks for the pair of revisions needed to correct the errors in the paragraph, which appear in sentence 2 and sentence 3.
- A.** Incorrect. The comma after the word "homes" in sentence 1 is necessary for separating the subordinate clause "When coal was used to heat homes" from the main clause. The only edit needed in this pair is in sentence 3, which incorrectly shifts the verb into the present tense. The clause "as natural gas becomes more common" should be "as natural gas became more common."
 - B.** Incorrect. The comma after the word "homes" in sentence 1 is necessary for separating the subordinate clause "When coal was used to heat homes" from the main clause. In sentence 4, the word "remarketed" is in the past tense established in the rest of the paragraph and should not change to the past perfect tense "had remarketed."
 - C. CORRECT.** This option is the only choice that revises the errors in both sentence 2 and sentence 3. In sentence 2, a comma needs to follow the word "company" to set off the phrase "who owned a cleaning product company." A comma is necessary because the phrase is a nonrestrictive clause: the phrase provides extra information about Cleo and Noah McVicker's line of work, but the phrase is not necessary in order to understand the meaning of the sentence. The second error is in sentence 3, which incorrectly shifts the verb into the present tense. The clause "as natural gas becomes more common" should be "as natural gas became more common."
 - D.** Incorrect. In sentence 2, a comma needs to follow the word "company" to set off the phrase "who owned a cleaning product company." In sentence 4, the word "remarketed" is in the past tense established in the rest of the paragraph and should not change to the past perfect tense "had remarketed."

REVISING/EDITING PART B

Find Time to Volunteer

6. The question asks which revision of sentence 2 uses the most precise language.
- E. CORRECT.** In sentence 2, the author states that people who volunteer in their free time do so “at various places.” The revision to sentence 2 provides the most precise language because it references three specific places (animal shelters, community centers, and parks) where people often volunteer.
 - F.** Incorrect. Although this sentence mentions “a variety of places, events, or organizations” at which people volunteer, the revision does not use the most precise language because it does not list specific places, events, or organizations.
 - G.** Incorrect. Although this sentence mentions “local establishments that help people, animals, or other groups,” the revision does not use the most precise language because it does not name the specific types of establishments at which people can volunteer.
 - H.** Incorrect. Although this sentence mentions “places where [volunteers] can help people in many ways,” the revision does not use the most precise language because it does not provide specific examples of where people can volunteer.
-
7. The question asks which sentence should follow sentence 4 to introduce the main claim of the passage.
- A. CORRECT.** In sentence 4, the author states that “research shows that those who volunteer also receive benefits.” The sentence in the option logically follows the ideas in sentence 4 and provides the best thesis statement for the passage because it introduces the author’s main claim that high school students should consider the benefits of volunteerism.
 - B.** Incorrect. While the sentence refers to the “benefits” mentioned in sentence 4, it erroneously asserts that “immediate and long-term results” are “guaranteed.” In addition, the sentence does not introduce the author’s main claim that volunteering is beneficial for high school students.
 - C.** Incorrect. Although the sentence states that “volunteerism can be beneficial for students,” it also introduces the idea that volunteerism can benefit the family and the community as well, not just high school students.
 - D.** Incorrect. Although the sentence introduces the claim that “high school students should learn about” volunteering, it focuses on the idea that volunteering strengthens the community, rather than introducing the claim that volunteering is beneficial for high school students.

- 8.** The question asks which sentence is least relevant to the ideas presented in the second paragraph (sentences 5–10) and should be deleted.
- E.** Incorrect. Sentence 5 introduces the topic of the second paragraph, which is that finding time to volunteer “may sound impossible” for many students. Sentence 6 logically follows this idea because it provides one reason why students might hesitate or be unable to volunteer. Therefore, sentence 6 is relevant to the ideas presented in the second paragraph and should not be deleted.
- F. CORRECT.** Sentence 7 states that “time and energy” are required for volunteering, which partially addresses the topic of the second paragraph about the various commitments that fill high school students’ schedules. However, sentence 7 interrupts the flow of the paragraph by interjecting specific examples (“volunteering at a retirement center or homeless shelter”) into a general list of activities and commitments. Thus, the sentence is the least relevant to the paragraph and should be deleted.
- G.** Incorrect. In the second paragraph, the author discusses why some high school students may hesitate to volunteer. In sentences 6 and 9, the author points out that “schoolwork” and “family obligations and part-time jobs” are activities that require students’ time and may cause them to hesitate taking on any additional activities. Sentence 8 contributes to this idea by stating that “extracurricular activities” also require a time commitment from students. As a result, sentence 8 contributes to the ideas in the second paragraph and should not be deleted.
- H.** Incorrect. In the second paragraph, the author acknowledges that some high school students may hesitate to volunteer because of “schoolwork” and “extracurricular activities.” Sentence 9 contributes to this idea by stating that “family obligations and part-time jobs” also require a time commitment and may cause students to hesitate to volunteer. Therefore, sentence 9 contributes to the ideas in the second paragraph and should not be deleted.

9. The question asks which option would best follow sentence 12 to support the ideas presented in the third paragraph (sentences 11–12).
- A. Incorrect. The subject of the main clause in sentence 12 is “admissions counselors.” Although the second sentence in the option mentions “admissions counselors,” it does not support the ideas in the paragraph, because the statement that “admissions counselors know that character traits like these will benefit the applicants” focuses on how students benefit while sentence 12 focuses on how these traits benefit the community.
 - B. Incorrect. While sentence 11 discusses the potential academic and professional connections that can be made through volunteering, sentence 12 moves on to the topic of college admissions. Since the sentences in the option revert back to the topic of connections, they do not support and logically follow a sentence about how college admissions counselors view students with volunteering experience.
 - C. Incorrect. Although the sentence in the option continues on the subject of admissions counselors and follows the idea in sentence 12 that these counselors tend to favor students who “care about making their community and college campus a better place,” the sentence focuses on what students will do while in college rather than on how volunteering helps them get into college. Therefore, the sentence does not best follow sentence 12 and support the ideas presented in the third paragraph.
 - D. **CORRECT.** In sentence 12, the author states that college admissions counselors view students who list volunteer work on admissions applications as “applicants who care about making their community and college campus a better place.” The sentence in the option best follows sentence 12 and supports the ideas in the third paragraph because it provides additional details about why admissions counselors look beyond academics when considering students for admissions and the positive qualities assigned to those who have volunteering experience.

- 10.** The question asks which concluding sentence should replace sentence 22 to provide the best support for the argument presented in the passage.
- E.** Incorrect. Although the sentence lists examples of organizations that depend on “hardworking young people” as volunteers, it should not replace sentence 22, because its use of specific examples does not provide a strong conclusion to the main idea in the passage, and it does not best support the main argument that students benefit themselves and their community when volunteering.
 - F.** Incorrect. While the sentence supports the argument that students “will experience a host of benefits” through volunteerism, it should not replace sentence 22 as a concluding sentence, because it does not best support the main argument that volunteerism benefits both the students and their community.
 - G.** Incorrect. Although the sentence emphasizes the importance of prioritizing volunteerism, it should not replace sentence 22, because it focuses on the main idea in the second paragraph (“For many students, this proposition may sound impossible.”), rather than the main argument that volunteerism benefits both students and their community. This sentence introduces the idea that student volunteers “are soon encouraging their peers” to volunteer, which does not best support the argument presented in the passage.
 - H. CORRECT.** This sentence should replace sentence 22 to conclude the passage because it lists specific reasons for volunteering (“Whether they are seeking admission to college, preparing to enter the workforce, or simply looking to reduce stress”) and best supports the main argument that volunteering not only helps students but can also help their community (“high school students who volunteer can help themselves as much as they help others”).
-

The Benefits of Indoor Plants

- 11.** The question asks which sentence should follow sentence 3 to best introduce the topic of the passage.
- A. CORRECT.** The sentence introduces the overall topic by previewing the main ideas in the passage. It introduces the connection between natural elements and well-being (“a healthy bridge”) and sets up the main argument of the passage (“Placing plants in homes and offices” can increase people’s well-being).
 - B.** Incorrect. Although sentence 3 mentions the connection between “people and nature,” this sentence references the importance of spending time near plants while both indoors and outdoors. However, the passage focuses specifically on the benefits of having indoor plants.
 - C.** Incorrect: Though the sentence describes a reason why indoor plants are important (“For [people’s] personal health and well-being”), the topic of the passage is related to the need for indoor plants, not the need for people to spend more time outdoors.
 - D.** Incorrect. While the sentence refers to how time away from nature can affect health and well-being, the vague wording (“little connection to nature”) makes this sentence too broad to introduce the topic of the passage, and thus, it should not follow sentence 3.

- 12.** The question asks for the transition word or phrase that should be added to the beginning of sentence 5.
- E.** Incorrect. The transition phrase "As a result" conveys a cause-and-effect relationship that does not exist between the ideas in sentence 4 and sentence 5. Although the plants' conversion of carbon dioxide into oxygen removes harmful toxins from the air, the process of photosynthesis (sentence 4) does not deprive people of the plants' benefits (sentence 5).
 - F.** Incorrect. Although the passage describes why people should spend time in close proximity to plants, the idea in sentence 5 is actually in opposition to the idea in sentence 4 rather than an elaboration of it. The transition word "Primarily" incorrectly suggests that the sentences describe the same idea.
 - G.** Incorrect. Although sentence 4 describes a positive idea (plants are beneficial) and sentence 5 describes a negative idea (deprivation), the transition phrase "In contrast" conveys an inaccurate relationship between the ideas in the sentences. Sentence 5 is not arguing against the beneficial effect of plants and should not begin with a transition that implies opposition.
 - H. CORRECT.** The relationship between the ideas in the sentences is correctly conveyed with the transition word "Unfortunately," which signals the shift from the positive effect described in sentence 4 (plants are helpful) to the emphasis in sentence 5 that the positive effect is dependent on proximity to plants.
-
- 13.** The question asks for the sentence that could best follow sentence 13 to support the ideas in the third paragraph (sentences 11–14).
- A. CORRECT.** The sentence could best follow sentence 13 because it directly supports the main idea of the third paragraph that indoor plants provide "psychological benefits" (sentence 11) by presenting the findings of a relevant research study. The details about the study provide a concrete example of the mental benefits of indoor plants: the employees in the study who worked near plants "were more creative" and accomplished more than those who worked in spaces without plants.
 - B.** Incorrect. Although the sentence describes a study in which indoor plants were found to have a positive effect, it does not clearly support the ideas in sentences 11–14, because the sentence focuses on the popularity of the hotel rather than psychological benefits. Therefore, this sentence does not best follow sentence 13 to support the ideas in the third paragraph.
 - C.** Incorrect. Although the sentence suggests that being "routinely exposed to natural elements" can increase the positive emotion of compassion, it could not best follow sentence 13, because the reference to "natural elements" is too vague to sufficiently support the ideas in the third paragraph. The sentence does not logically follow the idea from sentence 13, which refers specifically to "encountering natural elements while indoors."
 - D.** Incorrect. The sentence develops the idea that indoor plants are helpful by comparing them to carpeting and stating that they can reduce the amount of noise that people perceive. Noise cancellation, though convenient, is irrelevant to the topic of the third paragraph, which is specific to the psychological benefits of indoor plants. Therefore, this sentence does not best follow sentence 13 to support the ideas in the third paragraph.

- 14.** The question asks for the sentence that presents ideas irrelevant to the topic of the passage and should be deleted.
- E.** Incorrect. Sentence 11 presents one of the key reasons why plants are so important in indoor spaces: they have a positive effect on mental health. The idea that plants provide psychological benefits is relevant to the topic of the passage, and the sentence should not be deleted.
 - F.** Incorrect. Sentence 14 is relevant to the topic because it explains how many plants a person should add to a space in order to experience “the maximum benefit of natural elements.” This idea addresses the main topic of the passage, and the sentence should not be deleted.
 - G.** Incorrect. Although “connecting with nature” is somewhat broader than the topic of the passage, sentence 15 is relevant and belongs in the passage because it specifically refers to using indoor plants as one way to connect with nature (“even just by being near an indoor plant”). Therefore, the sentence should not be deleted.
 - H. CORRECT.** While the topic of the passage is the harm caused by the “separation between people and nature” (sentence 3), the reference in sentence 16 to “an electronic screen” is irrelevant to the topic of the passage. The idea that “today’s workers need to get up and get outdoors” (sentence 16) is, in fact, the opposite of what the passage argues, and the sentence should be deleted.
-
- 15.** The question asks for the concluding sentence that should follow sentence 17 to best support the information presented in the passage.
- A.** Incorrect. Although the sentence describes plants as “vital to our wholeness and wellness,” the detail about the absorption of carbon dioxide from the air is overly specific and does not capture the broader argument presented in the passage (that placing plants indoors “is a significant factor in a person’s well-being” [sentence 15]).
 - B.** Incorrect. The sentence’s reference to particular types of plants suitable for indoor spaces supports the idea of incorporating nature into a home or office, but the sentence does not address the benefits people can experience for doing so and thus does not present a logical conclusion for the information in the passage.
 - C. CORRECT.** The sentence directly presents the argument of the passage (“More people should consider bringing natural elements inside”) and supports the central ideas in the second and third paragraphs relating to the health and psychological benefits of having indoor plants.
 - D.** Incorrect. Although the sentence notes the positive impact that houseplants can have on air quality, the sentence does not logically follow the preceding information about the overall benefits to a person’s health and well-being.

READING COMPREHENSION

Champion of the Channel

- 16.** The question asks what the newspaper editor's comments in paragraph 1 reveal about Ederle's challenges leading up to her attempt to swim across the channel.
- E.** Incorrect. The idea that Ederle was at a disadvantage because she was American rather than English, and thus less familiar with the channel, was not the basis for the newspaper editor's comments about the outcome of her swim.
 - F.** Incorrect. The passage establishes that Ederle was a highly accomplished swimmer who had won major world competitions ("Gertrude Ederle, an American swimmer with eighteen world records and three Olympic medals" [paragraph 1]).
 - G.** Incorrect. The newspaper editor's point was that Ederle would be unsuccessful in her attempt to complete the swim because she was a woman, not that people were uncomfortable with the idea since no woman had attempted it before.
 - H. CORRECT.** The comments reveal a lack of social support since many people believed that a woman, no matter how skilled a swimmer, did not have the strength to overcome the physical challenges that the dangerous channel waters presented ("He claimed that 'even the most uncompromising champion of the rights and capacities of women must admit that in contests of physical skill, speed and endurance they must remain forever the weaker sex.' " [paragraph 1]).
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- 17.** The question asks for the best summary of Ederle's steps to prepare for her second attempt to swim across the English Channel.
- A. CORRECT.** Ederle's preparation is outlined in paragraph 4. This option is correct because it acknowledges the idea that Ederle involved her sister in this process, and it details the efforts the two took to improve Ederle's equipment, including sealing her goggles with wax and designing a better swimsuit.
 - B.** Incorrect. The option focuses on Ederle's actions in the moments before her swim (covering her body with grease for insulation) and during her swim (finding her "sphere"), not her overall preparation methods.
 - C.** Incorrect. The option refers to a way that Ederle's coach helped Ederle keep her strokes in rhythm during her swim. While this option suggests that Ederle and her coach had made thoughtful preparations, it does not address the many other steps that Ederle took to prepare for the swim.
 - D.** Incorrect. The option does not refer to the series of steps that Ederle took to prepare for her swim, but rather to just one of the efforts made (improving equipment), without acknowledging her sister's contributions.

- 18.** The question asks about the effect of the word “insurmountable,” which means “incapable of being overcome,” in paragraph 4.
- E.** Incorrect. Ederle did not complete her first swim because she became ill (“Just six miles short of finishing, she became ill, and her coach had to haul her out of the water.” [paragraph 3]), not because the suit made it impossible for Ederle to complete her swim.
 - F.** Incorrect. The author uses the word “insurmountable” to draw attention to the increased difficulty caused by the swimsuit, not to draw attention to the sisters’ creativity in solving the problem.
 - G. CORRECT.** The suit Ederle wore during her first attempt to swim the channel “stretched out, filling with water and creating drag” (paragraph 4), which likely contributed to her failed attempt to swim across the channel.
 - H.** Incorrect. The passage does not address whether the original swimsuit was custom made, simply that the swimsuit created additional difficulties for Ederle in a situation that was already difficult.
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- 19.** The question asks how a problem-and-solution structure in paragraph 5 contributes to the ideas presented in the passage.
- A.** Incorrect. The details in paragraph 5 do not provide a connection between the cold temperature of the water and the effectiveness of Ederle’s training.
 - B.** Incorrect. The difficulties Ederle encountered were only partially relieved by her team, and her team’s efforts to ensure Ederle’s safety are not explained in the passage.
 - C.** Incorrect. The paragraph does not focus on the relationship between the problems Ederle encountered at the start of her swim and the problems she encountered during or near the end of her swim.
 - D. CORRECT.** The paragraph describes how the water’s temperature made Ederle uncomfortable and made it difficult for her to regulate her stroke. The paragraph continues with the explanation of how she overcame these issues by focusing her mind on the sea and tuning out the distractions in her surroundings (“the sea became her only companion and the shrieks of gulls and the humming of boat engines faded away.” [paragraph 5]).

- 20.** The question asks for the best support for the idea that Ederle’s swim across the channel was successful because of her innovative approach to the challenge.
- E.** Incorrect. The sentence from paragraph 1 shows that Ederle’s performance was groundbreaking but not necessarily innovative.
 - F.** Incorrect. The layers of grease mentioned in the sentence from paragraph 5 primarily served to insulate (keep Ederle warm) by helping her maintain her body temperature in the cold water; neither the sentence in paragraph 5 nor surrounding text evidence establish that this was an innovative practice.
 - G. CORRECT.** The sentence from paragraph 5 explains that Ederle employed a newly developed, or innovative, type of stroke that allowed her to maintain her pace through the rough water.
 - H.** Incorrect. While the sentence from paragraph 7 relates to a small component of Ederle’s success (the storm calming and the tide shifting), those changes were not a result of Ederle employing innovative techniques.
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- 21.** The question asks for an explanation of how paragraph 7 contributes to the development of a central idea of the passage.
- A.** Incorrect. Although Ederle needed to remain focused on her goal, the idea that her physical strength and mental fortitude allowed her to maintain this focus is not illustrated in paragraph 7. Paragraph 7 instead contributes to the development of a central idea by emphasizing Ederle’s emotional responses over the course of her swim.
 - B.** Incorrect. While paragraph 7 describes some of the physical challenges that Ederle faced (“The salty water caused her tongue to swell and inflamed her ears.”), the statement that she “pushed herself to the edge of her physical capabilities” is not the most accurate way to describe the focus of this paragraph. This option is incorrect because it omits the paragraph’s focus on Ederle’s emotional responses to the challenging circumstances of her swim.
 - C.** Incorrect. While paragraph 7 describes Ederle’s feelings of happiness and amusement during her swim, these feelings were caused by her anticipation and excitement as she approached achieving her goal, not by the severe weather.
 - D. CORRECT.** Paragraph 7 contributes to the development of a central idea by describing Ederle’s emotional state over the course of her swim. A central idea of the passage is that Ederle’s passion and determination allowed her to accomplish her goal of being the first woman to cross the English Channel. Paragraph 7 shows her passion and determination by emphasizing the positive emotions Ederle felt as she progressed during her swim, despite the unfavorable conditions (“For hours Ederle swam, dodging debris with an amused smile” and “Yet Ederle felt indescribably happy as she churned through the sea”).

- 22.** The question asks how the idea that many people were interested in Ederle’s attempt to swim the channel is mainly illustrated in the passage.
- E.** Incorrect. While paragraph 3 states that “a rival female swimmer was preparing to make her second attempt at the crossing as well,” which suggests that Ederle’s competitor was interested in Ederle’s attempt to swim the channel, this information does not establish that many people were interested in Ederle’s attempt.
 - F. CORRECT.** Paragraph 6 includes the detail that newspaper reporters followed Ederle on a tugboat and “wired dispatches of her progress to shore,” which suggests that an audience was waiting for news about Ederle’s progress. Paragraph 8 states that when Ederle reached shore, “the waiting crowd roared, honked their automobile horns, blasted their tugboat whistles, and set off flares that flashed in the sky.” Further, paragraph 9 states that when Ederle returned to New York, “thousands of people” attended a parade in her honor. These details describing the celebration of Ederle’s feat further illustrate the idea that many people were interested in what she had accomplished.
 - G.** Incorrect. While paragraph 9 states that “more than 60,000 people credited [Ederle] with motivating them to earn their American Red Cross swimming certificates,” this detail describes how Ederle’s historic swim influenced people after the fact but does not illustrate the level of public interest during the attempt itself.
 - H.** Incorrect. Paragraph 6 provides details about how Ederle’s “coach, family, and friends” displayed signs, played songs, and “passed her baby bottles of broth” to help her maintain her motivation and stamina. However, these resources do not suggest the idea that people beyond Ederle’s immediate support team were interested in her attempt to swim the channel.
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- 23.** The question asks for the sentence from the passage that best conveys the author’s perspective about the impact of Ederle’s swim.
- A.** Incorrect. Although this option shows Ederle’s determination to accomplish her goal, it does not convey the author’s perspective. Rather, the option reinforces Ederle’s own perspective about the challenge that she was facing.
 - B.** Incorrect. The sentence presented in this option is incorrect because it relates to Ederle’s state of mind as she came closer to achieving her goal and does not provide details about the author’s opinion of the impact of Ederle’s accomplishment.
 - C.** Incorrect. The sentence presented in this option is incorrect because it simply presents Ederle’s emotional state as she nears her goal and does not provide information about the author’s perspective.
 - D. CORRECT.** This option is correct because, throughout the passage, the author emphasizes that Ederle’s accomplishment was memorable and great, which is best stated in the sentence from paragraph 8.

24. The question asks how the table supports the information in paragraph 9.
- E. **CORRECT.** The table supports the information in paragraph 9 by showing that people have continued to swim the channel and have improved upon past records. The information in the table about records set by those who came after Ederle builds upon the idea that “Gertrude Ederle’s accomplishment proved to the world that with determination and passion, it was possible for a person to achieve his or her goals” (paragraph 9).
 - F. Incorrect. Even though paragraph 9 states that Ederle “inspired [everyday American citizens] to be more active” and the table presents the time for the current female record holder, there is no indication in paragraph 9 or in the table that the record holder was inspired by Ederle.
 - G. Incorrect. Although paragraph 3 mentions that Ederle had a female rival and the table includes the speed records of other female swimmers, paragraph 9 focuses on the impact Ederle’s swim had on average Americans (“inspired them to be more active” and “motivating them to earn their American Red Cross swimming certificates”) and does not provide information about other female swimmers competing with Ederle to set the channel-swim record.
 - H. Incorrect. Although paragraph 1 mentions that Ederle “broke the men’s record by two hours” and the table allows for comparisons between the earliest speed records and those of the present day, there is no mention in paragraph 9 of past, present, or future channel-swim records.
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5 Reasons Physical Books Might Be Better Than E-Books

25. The question asks how the details in paragraph 1 convey a central idea of the passage. A specific central idea that needs to be identified in order to correctly answer this question is that reading a digital book “might be inferior” (paragraph 1) to reading a traditional book.
- A. Incorrect. In paragraph 1, the author notes that despite the popularity of e-books, their sales fell in 2015, leading to the author’s statement that “print definitely isn’t dead.” While these statements suggest that readers still purchase and enjoy printed books, sales information between print and e-books is not compared. Therefore, these details do not convey a central idea of the passage.
 - B. **CORRECT.** The author states in paragraph 1 that “according to some research,” reading a traditional book “may actually be a better choice for some readers” because “digital reading affects us differently.” The author then supports this statement throughout the passage, detailing five advantages that printed books have over e-books. This detail helps convey a central idea of the passage.
 - C. Incorrect. In paragraph 1, the author refers to printed books as “traditional books” and the “dead-tree cousins” of e-books. Although these references suggest that printed books rely on natural materials more than e-books do, the author does not provide additional details in the passage to convey this idea. Therefore, this detail does not help convey a central idea of the passage.
 - D. Incorrect. Although the author states in paragraph 1 that “traditional books still have their evangelists,” the author does not provide additional statistics or details in the passage to convey the idea that some people recommend buying printed books over e-books. Therefore, this detail does not help convey a central idea of the passage.

- 26.** The question asks which evidence from the passage best supports the claim in paragraph 1 that “print definitely isn’t dead.”
- E. CORRECT.** In paragraph 5, the author points out that “while e-book textbooks are often cheaper (and easier to carry) than traditional door-stop textbooks, college students often don’t prefer them.” The author adds that “in some surveys of college kids, the majority of students have reported preferring print books.” As a result, this evidence from the passage supports the claim in paragraph 1 that “print definitely isn’t dead.”
- F.** Incorrect. In the passage, the author cites several studies that provide evidence that younger students “who read on iPads had lower reading comprehension than when they read traditional printed books” (paragraph 2). While this evidence supports the benefits of using traditional print material, it does not fully support the claim in paragraph 1 that “print definitely isn’t dead.”
- G.** Incorrect. Although the main idea of paragraph 6 is supported by the 2014 study that showed that “people who used e-readers with LED screens at night slept worse and were more tired the next day,” this detail does not support the claim in paragraph 1 that “print definitely isn’t dead.”
- H.** Incorrect. The author states in paragraph 6 that “staring at a lit screen can be tiring for the eyes and the brain” and that “reading digitally required a higher cognitive workload.” Although these details illustrate how using e-readers can have negative physical and mental effects, they do not support the claim in paragraph 1 that “print definitely isn’t dead.”

- 27.** The question asks how the findings from the studies described in paragraph 6 are important to the author's observations in paragraphs 7 and 8.
- A.** Incorrect. The evidence from the studies mentioned in paragraph 6 is not substantially supported by the personal opinions the author shares in paragraph 7 ("And if you're going to be up all night studying, turn off the backlight") or in paragraph 8 ("melt your brain" and "digital distractions").
- B. CORRECT.** In paragraph 6, the author cites studies from 2005 and 2014 that found that LED screens can "disrupt sleep patterns" and that "people who used e-readers with LED screens at night slept worse and were more tired the next day." Then, in paragraph 7, the author suggests that "if you're going to be up all night studying, turn off the backlight," and in paragraph 8, the author explains some differences between reading e-books on various devices. This information is not based on a personal opinion; instead, it is based on practical conclusions drawn from scientific evidence.
- C.** Incorrect. In paragraph 6, the author cites a 2005 study in which researchers found that "reading digitally required a higher cognitive workload than reading on paper." Then, in paragraph 8, the author concludes that "reading an e-book on a computer is a much different experience than reading on a Kindle, which is specifically designed for consuming books." Although the findings in paragraph 6 are important, they do not highlight the information presented by the author that digital reading experiences vary based on the reader and the device.
- D.** Incorrect. The author states in paragraph 8 that "reading an e-book on a computer is a much different experience than reading on a Kindle" and mentions how the same thing is true for "an interactive e-book on an iPad" compared with an e-book on "a simpler e-book device." Readers may conclude that this statement is meant to indicate the author's belief that more studies on more types of devices are needed. However, the author does not state or imply this belief in the passage.

- 28.** The question asks which sentence is the best summary of the research into the effects of e-book reading.
- E.** Incorrect. In paragraph 5, the author notes that “college students often don’t prefer” e-book textbooks but that more than half the children in a study reported “preferring screen reading.” Paragraph 3 describes a study that showed that “ ‘enhanced’ ” e-books might be distracting for young children. Therefore, this sentence is not the best summary, because it overstates the opinions of college students and implies that college students are distracted by interactive features, which is not discussed in the text.
- F.** Incorrect. According to the information in paragraph 3, children who read “ ‘enhanced’ ” e-books “remembered fewer narrative details than those who read print books or basic e-books.” A study conducted with a group of tenth graders showed that these students “remembered more about texts if they read them in print rather than on a computer screen” (paragraph 4). Although the author points out in paragraph 2 that “some interactive features in e-books are designed to enhance comprehension,” a study found that “ ‘enhanced’ e-books might be distracting” (paragraph 3). Therefore, this sentence does not provide the best summary of the research about e-book reading, because the author does not show that e-books aid in reading comprehension.
- G. CORRECT.** The author states in paragraph 2 that studies found that “students who read on iPads had lower reading comprehension than when they read traditional printed books” and that “e-books can be detrimental to the practice of reading itself.” In paragraph 3, the author also points out that a study found that “ ‘enhanced’ e-books might be distracting” and that children “remembered fewer narrative details than those who read print books or basic e-books.” Finally, in paragraph 6, the author states that “staring at a lit screen can be tiring for the eyes and the brain” and that “a 2005 study from Sweden found that reading digitally required a higher cognitive workload than reading on paper.” Therefore, this sentence provides the best summary of the research about e-book reading, because it includes accurate information about the results of the studies discussed in the text.
- H.** Incorrect. In paragraph 2, the author does point out that “researchers noted that some interactive features in e-books are designed to enhance comprehension, and that those might be more helpful than game-type interactive graphics.” The author also explains in paragraph 3 how children “were more engaged with [e-books] physically.” Because this sentence does not include important details about reading comprehension or the physical toll of e-book reading on readers, it does not provide the best summary of the research about e-book reading.

- 29.** The question asks which sentence from the passage suggests that people in the future will likely choose e-books over print books.
- A.** Incorrect. While this sentence from paragraph 2 implies high engagement with the interactive features of e-books, it does not provide explicit evidence indicating that engagement with e-books is a reason for choosing them over print books.
 - B.** Incorrect. While this sentence from paragraph 2 highlights some of the benefits of e-books, such as the potential to “enhance comprehension,” those benefits are not explicitly linked to readers choosing e-books over print books.
 - C.** Incorrect. This sentence from paragraph 3 provides evidence that shows both benefits and drawbacks of reading e-books, including higher engagement but a decreased ability to recall details. Therefore, the sentence does not clarify why readers would choose e-books over print books.
 - D. CORRECT.** In this sentence from paragraph 5, the author cites a 2012 study that found that over 50 percent of 8- to 16-year-olds “reported preferring screen reading.” Since this specific age group will one day influence the future of reading, and the results of the study provide a compelling percentage, this sentence provides clear evidence for what future readers will prefer.
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- 30.** The question asks which evidence in the passage is most relevant to the author’s claim that “our expectations of e-book reading . . . might affect how we approach the text” (paragraph 9).
- E. CORRECT.** According to information in the passage, “kids sometimes skipped text in favor of interactive features” (paragraph 2) and they “remembered fewer narrative details” (paragraph 3). Additionally, a study found that “participants didn’t regulate their study time with digital books like they did with paper texts, leading to worse performances” (paragraph 9). This information directly demonstrates the author’s claim that expectations of e-book reading might be affected by how people approach the text.
 - F.** Incorrect. In paragraph 3, the author states that e-books may be physically engaging, but they are also “distracting,” and readers who used them “remembered fewer narrative details.” While this evidence is important in helping readers understand why children who read e-books may comprehend less information than children who read print text, the evidence does not as strongly relate to the author’s claim as the idea in the correct answer does.
 - G.** Incorrect. The author states that one “study of adults also found that e-books can be hard to absorb” (paragraph 4) and that “if you’re really trying to absorb material, you might want to go for a physical book” (paragraph 7). Although the evidence presented here provides support for the idea that retaining information from an e-book is more difficult than from a print book, it does not as strongly relate to the author’s claim as the idea in the correct answer does.
 - H.** Incorrect. The author points out in paragraph 4 that adults “who read the story on a Kindle performed worse on the chronology test than the book readers.” Although this evidence shows how well adults can recall a series of events read in an e-book versus how well adults can recall a series of events read in a print book, the evidence does not as strongly relate to the author’s claim as the idea in the correct answer does.

- 31.** The question asks which sentence from the passage best reveals the author’s point of view about e-books.
- A. CORRECT.** The sentence from paragraph 1 best reveals the author’s point of view because it introduces the author’s argument that “e-books might be inferior,” which is illustrated throughout the text.
 - B.** Incorrect. The sentence from paragraph 5 provides a small detail about college students preferring traditional books over e-books despite the fact that e-books may seem ideal by being “cheaper (and easier to carry).” This statement supports one point made in the text but not the author’s broader point of view about e-books in general.
 - C.** Incorrect. In the second sentence from paragraph 8, the author discusses answers to why “all this may not mean that reading on a Kindle is really going to melt your brain” and compares reading on a Kindle with reading on a computer to explain how they are different. The sentence focuses on the experiences with using two types of e-book devices rather than on the author’s broader opinion about e-books.
 - D.** Incorrect. In the last sentence from paragraph 8, the author uses the previous comparison between reading on a Kindle and reading on a computer to illustrate the differences between “playing with an interactive e-book on an iPad” and using “a simpler e-book device that only presents the text” and limits distractions. However, similar to the sentence in Option C, this sentence focuses on the experiences of using two types of e-book devices rather than on the author’s broader point of view about e-books.
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Snowy Mountains

- 32.** The question asks how the description in the first stanza (lines 1–7) helps establish a central idea of the poem.
- E.** Incorrect. Details comparing the length of time the mountains have existed with the length of time the city has existed are referenced later in the poem.
 - F. CORRECT.** The poem is mostly about the grandeur of the mountains in spite of the spread of civilization. The first stanza contrasts these two elements.
 - G.** Incorrect. The poem actually communicates the message that people do not recognize the greatness of the mountains. This message is conveyed in the second stanza rather than in the first stanza.
 - H.** Incorrect. Although the first stanza mentions the size of the mountains, it does not imply that people cannot see how large the mountains are.

- 33.** The question asks how line 5 helps develop the theme of the poem.
- A. CORRECT.** Line 5 helps develop the theme that the mountains are more important than people realize by suggesting that the mountains serve a noble, supportive purpose in the world.
 - B.** Incorrect. While the poem does describe the strength and permanence of the mountains, the line does not suggest that these traits attract the clouds.
 - C.** Incorrect. While the line states that the highest peaks are “at rest,” the mountains mentioned in the poem have already been harmed by human influence and do not remain untamed or untouched.
 - D.** Incorrect. While pillars are strong and may indicate shelter, there is no suggestion in the line that the mountains are protecting the people. Additionally, this concept is not a theme of the poem.
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- 34.** The question asks how the isolation of the word “Uprise” in line 7 affects the meaning of the poem.
- E.** Incorrect. The word “Uprise” describes the mountains and, therefore, does not create a contrast between the plateau and the city buildings but rather between the mountains and the plateau.
 - F.** Incorrect. The word “Uprise” contrasts the mountains with the plateau; it does not compare the mountains to the buildings in the city.
 - G.** Incorrect. The word “Uprise” does not create a vision of the region before people developed the land because the first stanza, which line 7 concludes, reveals that the land has already been developed. Line 3 establishes that the mountains rise “above the dingy city-roofs.”
 - H. CORRECT.** The isolation of the word “Uprise” powerfully emphasizes the first stanza’s description of the magnificent mountains standing tall above the land below.
-
- 35.** The question asks how the poet develops the speaker’s point of view in the second stanza.
- A.** Incorrect. The speaker’s descriptions of the mountains’ awe-inspiring size and strength mainly occur in the first and third stanzas, while in the second stanza, the speaker focuses on humanity and its negative effect on the mountains.
 - B.** Incorrect. The wording of the second stanza—“makes war” (line 10), “Splits down their shining sides” (line 12), and “Destroys the lonely fragments” (line 14)—communicates the speaker’s position that people’s main impact on the mountains is destructive; the wording does not illustrate different ways people impact the natural environment.
 - C. CORRECT.** In the second stanza, the speaker criticizes the destructive actions of “the world” (lines 8 and 10) against the mountains—actions such as tunneling “their granite cliffs” (line 11) and destroying “the lonely fragments of their peace” (line 14).
 - D.** Incorrect. In the second stanza, the speaker does not describe a positive relationship between the mountains and the people.

- 36.** The question asks for the line from the poem that best supports the idea that people have sacrificed natural beauty for profit.
- E.** Incorrect. While city roofs may spoil the natural beauty, they do not directly symbolize financial gain or profit in line 3.
 - F.** Incorrect. Although making a profit might have been the root cause of the damage that was done to the mountains, making war on the mountains is not a direct message about profit or financial gain in line 10.
 - G.** Incorrect. Although tunneling through the mountains affects the natural beauty of the mountains, it does not directly symbolize financial gain or profit in line 11.
 - H. CORRECT.** Advertisements are often used as a means to gain a profit, as implied by the soap advertisements in line 13. Additionally, the word "Plasters," in line 13, communicates a negative connotation for the use of advertisements on the priceless natural beauty of the mountains.
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- 37.** The question asks for the detail from the poem that reflects the speaker's view that people often fail to appreciate that which is familiar.
- A.** Incorrect. Line 6 describes the mountains' location, rather than their long existence or their familiarity.
 - B. CORRECT.** Line 9 most directly supports this idea by implying that the mountains have been there for so long that people are accustomed to seeing them and no longer appreciate their beauty and value.
 - C.** Incorrect. In line 12, the mention of harm that has been done to the mountains does not connect to a sense of familiarity.
 - D.** Incorrect. Although line 18 alludes to the long existence of the mountains, it does not connect this long existence with a sense of familiarity or the failure of people to appreciate the mountains' worth.
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- 38.** The question asks how the details in the third stanza most contribute to the development of a theme of the poem.
- E. CORRECT.** In the third stanza, phrases such as "Wilderness still untamed" (line 17), "time-resisting storm-worn stone" (line 22), and "The mountains swing along" (line 23) convey the message that in spite of the destruction described in the second stanza, the mountains manage to maintain their wild magnificence.
 - F.** Incorrect. While the phrase "Barrier broken down" (line 21) conveys the idea that people can have some effect on the natural landscape, it does not convey how nature affects people.
 - G.** Incorrect. The phrase "those who do not need" (line 21) implies a choice to damage nature and not a lack of awareness or understanding.
 - H.** Incorrect. The third stanza is not a call to humanity to respect the mountains but a description of the untamed, welcoming mountains and the joy they provide for those who appreciate them.

39. The question asks how lines 21–22 help convey the speaker’s point of view.
- A. Incorrect. The word “barrier” (line 21) refers to the speaker’s opinion that the mountains were “spread by Gods” (line 19) and not to an obstacle that the speaker thinks should be removed.
 - B. Incorrect. While the lines indicate that people have lost the need to connect with nature, they do not reveal that the speaker thinks that the cause of this loss is busyness.
 - C. **CORRECT.** The words “those who do not need / The joy” in lines 21–22 suggest the speaker’s sadness that people do not realize that they are destroying something wonderful and irreplaceable.
 - D. Incorrect. Although the speaker does say that the stone is “time-resisting” (line 22), this belief is only a small detail of the speaker’s point of view.
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40. The question asks what the personification in the concluding lines of the poem suggests about the mountains.
- E. **CORRECT.** Line 25’s use of the word “Welcoming” suggests that the mountains are kind hosts. Lines 23 and 26, with language such as “The mountains swing along” and “The mists that dance and drive before the sun,” imply the carefree nature of the mountains as they resist the destructive work of humanity.
 - F. Incorrect. The personification in the lines conveys a sense of optimism and endurance, with no language to suggest coming destruction.
 - G. Incorrect. Although the lines mention that “the mountains swing along” (line 23) and “the mists . . . dance” (line 26), the personification is used to describe the mountains’ perseverance, rather than to suggest that the mountains are amused by the concerns of others.
 - H. Incorrect. Although the second stanza develops the idea that the mountains have been mistreated by humans, which might be a source of pain, the concluding lines emphasize the joy and perseverance of the mountains as they “swing along” (line 23) despite significant adversity.

Excerpt from *A Voice in the Wilderness*

- 41.** The question asks how the phrase from paragraph 2 affects the tone in the first part of the excerpt.
- A.** Incorrect. When Margaret recalls the interaction, there is no indication that she blames the men for her current problem.
 - B.** Incorrect. While the description of how Margaret “hastily [gathers] up her belongings” and “[hurries] down the aisle” (paragraph 1) may give the appearance of being defiant, there is no evidence that she intentionally put herself in this vulnerable position just to make a point.
 - C. CORRECT.** The phrase includes the words “all three” and “taken the trouble,” emphasizing Margaret’s early frustration as she recalls with some confused irritation that the men thought she needed an abundance of help earlier, but none of them is around to help when the train stops.
 - D.** Incorrect. While the conductor, brakeman, and porter have all looked after Margaret by alerting her that her station was next, it is unclear whether Margaret appreciates this excess of attention. The phrase instead conveys Margaret’s annoyance about a situation in which assistance from the railroad employees would have been welcome but is not provided.
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- 42.** The question asks for evidence from the excerpt that best supports the idea that Margaret is unfamiliar with traveling to new places by train.
- E.** Incorrect. Margaret’s actions in the sentence from paragraph 1 are decisive as she gathers her belongings to exit the train; she is familiar with rail travel.
 - F.** Incorrect. In the sentence from paragraph 2, Margaret is using her knowledge about trains to attempt to interpret the actions of others; she is familiar with trains, even if a particular destination has not been mentioned.
 - G. CORRECT.** If Margaret has never traveled to this region by train before, she must guess or attempt to interpret what she sees. This idea is best represented in the sentence in paragraph 3 where she questions whether the stations in the West have platforms.
 - H.** Incorrect. While the sentence from paragraph 4 shows that Margaret is trying to better understand her situation in the darkness, her ability to identify the train’s engine and the figures carrying lanterns indicates some familiarity with her mode of travel.
-
- 43.** The question asks how the simile in the sentence from paragraph 4 affects the tone of the paragraph.
- A.** Incorrect. Margaret is confused and indecisive, showing her discomfort with her situation.
 - B. CORRECT.** The image of two or three fireflies creating small specks of light in the darkness creates a sense of isolation or loneliness in Margaret, as shown in the sentence “A sudden feeling of isolation took possession of her” (paragraph 4).
 - C.** Incorrect. Margaret is not tranquil; rather, she expresses distress, questions her decisions, and worries about being labeled a “fool” (paragraph 4).
 - D.** Incorrect. Margaret experiences feelings of isolation and begins to question her decision in paragraph 4, but these feelings do not become extreme until paragraph 9, where she feels “a sickening sense of terror and failure” as the train pulls away.

44. The question asks how Margaret's earlier interactions with the conductor, brakeman, and porter affect the plot.
- E. **CORRECT.** Because the conductor, brakeman, and porter have all "taken the trouble to tell her that hers was the next station" (paragraph 2), Margaret assumes that the next time the train stops, she will have reached her station. This assumption causes Margaret to get off the train at the next stop without waiting for help or confirmation, but the stop turns out to be just "a pause to water the engine" (paragraph 15). This mistaken assumption creates the main problem that Margaret confronts in the passage.
 - F. Incorrect. Although Margaret's earlier interactions with the three railroad employees cause her to think that she knows when to get off the train, it is clear from paragraph 4 that Margaret is deeply confused and does not know what to do once she has exited the train car. She muses uneasily, "Perhaps she ought not to have got out until some one came to help her. Perhaps the train had not pulled into the station yet and she ought to get back on it and wait" (paragraph 4).
 - G. Incorrect. Margaret wonders in paragraph 3 whether the train is "so long that her car had stopped before reaching [the station]" and speculates in paragraph 4 that "the train had not pulled into the station yet." These thoughts reflect her assumption (based on her interactions with the three railroad employees) that the next stop is her station. However, Margaret's speculation that the train has not fully pulled into the station does not significantly affect the plot.
 - H. Incorrect. Margaret wonders in paragraph 3 whether they "have platforms in this wild Western land" and is expecting to see a platform because her interactions with the three railroad employees have led her to believe that she has reached a station. However, it is unclear whether Margaret really believes that rural stations all lack platforms, and her speculation on this point is not further developed in the passage and does not affect the plot.
-
45. The question asks for an explanation of what the imagery in the sentence from paragraph 9 conveys.
- A. Incorrect. Margaret's "sickening sense of terror" indicates that she is extremely afraid of being left behind rather than increasingly irritated with the other passengers.
 - B. Incorrect. Although Margaret is "screaming, running, trying to attract some one's attention" in an effort to be noticed so that the train will stop, she is not attempting to keep up with the train. This option omits consideration of the "mocking clatter" of the train, which emphasizes Margaret's helplessness rather than her physical efforts.
 - C. Incorrect. While Margaret's screaming and running could easily suggest feelings of anger, the description of her "sickening sense of terror and failure" indicates otherwise.
 - D. **CORRECT.** The words "useless" and "failure" in the sentence indicate that Margaret's best efforts do not help her. The phrase "the last car slatted itself past" shows that Margaret is helpless to stop the train from departing, which leaves her completely vulnerable.

- 46.** The question asks about the relationship between the theme and paragraph 9, where Margaret desperately tries to get someone on the train to notice her.
- E. CORRECT.** One important theme of this excerpt concerns Margaret’s willingness to take action to ensure that she reaches her destination. This determination, described in Option A, is why she gathers her belongings together without help, gets off the train without being assisted by employees, and then attempts to climb back on while the train employees are busy examining the engine.
 - F.** Incorrect. While the narrator describes her screaming as useless, she does not feel that her efforts overall are useless, and she does not give up until paragraph 10.
 - G.** Incorrect. While Margaret is feeling a sense of “failure” in paragraph 9, she does not condemn herself as the train moves away.
 - H.** Incorrect. Margaret expresses “terror” in paragraph 9 over being unable to catch someone’s attention, not frustration about her lack of control over her surroundings.
-
- 47.** The question asks what the figurative language emphasizes in the sentence from paragraph 10.
- A.** Incorrect. While the image of Margaret’s hands dropping at her sides could suggest a sense of doubt, the figurative language in the sentence emphasizes a different feeling about her situation and does not indicate her intentions.
 - B.** Incorrect. While the figurative language suggests that the train is mocking Margaret, this language is not referring to the people onboard, who are described in paragraph 8 as “comfortable and safe inside, unconscious of her need.”
 - C.** Incorrect. While Margaret is worried in paragraph 4 about embarrassing herself, she now feels “dazed” because she is overwhelmed with the seriousness of what has just happened.
 - D. CORRECT.** As Margaret stands and reaches out “helpless hands,” the language used to describe the train as “swinging tauntingly” and having “a leer in its eye” underscores Margaret’s fears of being left alone and being vulnerable; there is nothing she can do to change the situation at this point.

48. The question asks how paragraph 11 contributes to the plot of the excerpt.

- E. **CORRECT.** In paragraph 5, Margaret assumes there is a station (“It was probably on the other [side], but she was standing too near the cars to see”), but in paragraph 11, the station that had been “so real” in Margaret’s mind actually does not exist.
- F. Incorrect. Margaret’s main problem is not that her imagination has led her astray but rather that her inexperience with this train route has caused her to misinterpret the events that have occurred. Paragraph 11 reveals that she has been acting on faulty assumptions; however, her assumptions are somewhat justified by the events that have occurred.
- G. Incorrect. While Margaret seems somewhat in awe of her surroundings in paragraph 12 and she “gasped” in paragraph 11, her exclamation is one of shock at the discovery, not surprise over an unexpected adventure.
- H. Incorrect. While paragraph 11 describes how Margaret responds to the distressing situation that her actions and decisions have created, the paragraph does not offer insight into how Margaret generally responds to problems or conflicts.

Invention of the Telegraph

49. The question asks how the use of problem-solution in paragraph 2 contributes to the development of ideas in the passage.

- A. Incorrect. While the discussion “aboard ship” in 1832 reminded Morse of the lectures he had attended at Yale College and made him consider how a coded message could be sent “over a wire” (paragraph 2), it was Morse’s failed attempts with electricity that caused him to reach out to Gale for help.
- B. Incorrect. While “Morse found when he began to develop his idea that he had little real understanding of the nature of electricity” (paragraph 2), the paragraph does not state that he was discouraged; it was his failed experimentation that resulted in him first realizing that he needed help.
- C. Incorrect. Paragraph 2 states that “Morse came to understand how [Faraday’s electromagnet] worked,” and this understanding is what caused him to think about sending messages over a wire. Also, Morse’s difficulty was in understanding the properties of electricity in general once he began his experimentation.
- D. **CORRECT.** The author’s use of problem-solution in paragraph 2 contributes to the development of ideas in the passage because the author states that “Morse found when he began to develop his idea that he had little real understanding of the nature of electricity, and . . . he finally turned for help to . . . Leonard D. Gale.” Thus, Morse’s longtime fascination was not enough to make up for his lack of knowledge about electricity.

- 50.** The question asks how the use of sequencing, or arranging in chronological order, in paragraph 3 contributes to the overall structure of the passage.
- E.** Incorrect. Although the inventions and advancements of others assisted in the development of the telegraph, the passage does not suggest that the other men were attempting to create their own telegraph systems.
 - F. CORRECT.** The use of sequencing in paragraph 3 emphasizes that Morse’s telegraph was created through a process of building upon earlier scientific ideas and breakthroughs. Paragraph 3 shows that when Morse approached Leonard D. Gale for help, Gale was able to inform Morse about Joseph Henry’s earlier experiments and research concerning electricity. Further, Gale built upon Henry’s work by showing Morse how to “regularly boost the strength of a signal and overcome the distance problems he had encountered by using a relay system Henry had invented.”
 - G.** Incorrect. The only other long-distance communication system mentioned in the passage is the outdated semaphore system discussed in paragraph 1.
 - H.** Incorrect. The telegraph system was in development for more than ten years because of the lack of funding and the need for further experimentation.
-

- 51.** The question asks how the details of the section “The Growth of an Idea” help convey a central idea of the passage.
- A.** Incorrect. Although paragraph 2 in this section states that Morse “speculated that it might be possible to send a coded message over a wire,” this section does not describe Morse and his colleagues’ ultimate success at sending such a message.
 - B. CORRECT.** The section helps convey a central idea because it mainly focuses on what inspired Morse to begin his work and explains how others were just as interested in working to achieve this goal. Paragraph 3 states that “Henry’s experiments, Gale’s assistance, and, soon after, hiring the young technician Alfred Vail were keys to Morse’s success.” Their shared interest in the possibilities of electricity inspired them to work together to find a way to use electricity to send long-distance messages.
 - C.** Incorrect. Paragraph 2 of the section explains how Morse came to understand how Faraday’s electromagnet worked and states that this invention prompted Morse to wonder whether it might be possible to send a coded message over a wire. However, that early idea of Morse’s only evolved into the telegraph after much more research and experimentation.
 - D.** Incorrect. Although paragraph 2 establishes that Morse was interested in lectures at Yale on electricity, the influence of what Morse learned at Yale was only a minor factor in his development of the telegraph.

- 52.** The question asks what the words “dramatic” and “spectacularly” convey in the sentence from paragraph 7.
- E.** Incorrect. While there may have been some feelings of relief and fulfillment when the lines were finished, the passage instead focuses on the wonder and joy that Morse and Cornell felt after overcoming setbacks and completing the construction of the telegraph system.
 - F. CORRECT.** Morse and Cornell rushed to post the wires overhead, and the “rigid deadline” (paragraph 7) was successfully met. The words have a positive and victorious tone that is consistent with the feeling of wonder that it worked and of celebration that the construction was completed.
 - G.** Incorrect. The passage does not share whether Morse or Cornell considered the future possibilities of the telegraph; it shares only that the finished product was “dramatic,” implying it was amazing to see.
 - H.** Incorrect. While the passage later discusses the expansion of overhead wires “up and down the Atlantic coast” and how they “connected the continents of Europe and America” (paragraph 8), there is no evidence shared in the passage that Morse planned to continue his work with electricity.
-

- 53.** The question asks for the best summary of how Morse obtained the funding necessary to build his telegraph system.
- A.** Incorrect. This summary focuses mostly on what Morse did while his application for funding was delayed in the United States rather than on how Morse acquired the patent, because during this period, Morse tried “not only to secure patent protection overseas but to examine competing telegraph systems in England” (paragraph 5). Therefore, it is not the best summary of how Morse obtained the funding necessary to build his telegraph system.
 - B.** Incorrect. Although this summary mentions how Morse applied for the “federal government’s appropriation” (paragraph 5), it primarily focuses on the actions of the House of Representatives and the Senate, not on Morse’s efforts to obtain funding. Therefore, it is not the best summary of how Morse obtained the funding necessary to build his telegraph system.
 - C. CORRECT.** This summary best describes how Morse obtained the funding that he needed for his telegraph system because it explains that Morse applied “for the federal government’s appropriation, and during the next year he conducted demonstrations of his telegraph” (paragraph 4). In paragraph 5, the author explains the impact that the Panic of 1837 had on Morse’s request. In paragraph 6, the author describes how by 1843, economic times had improved, so Morse again “asked Congress for the \$30,000” and was awarded the funds after “the Senate approved it.”
 - D.** Incorrect. This summary is not the best summary of how Morse obtained the funding necessary to build his telegraph system, because it relates how Morse worked with others to develop his ideas about the telegraph and how Gale and Vail were the “keys to Morse’s success” (paragraph 3) before he applied for funding.

54. The question asks how the passage mainly illustrates the idea that the United States was mostly unaware of the possibilities of electricity in the mid-nineteenth century.

- E. CORRECT.** Paragraph 1 states that most signaling systems at the time were “visual or ‘semaphore’ systems using flags or lights” and that the United States government was looking for “just such a system along its entire Atlantic coast.” This option is correct because it shows that the government wanted to continue to use a limited system instead of finding ways to improve the system. Had the government been aware of the possibilities of electricity, a more sophisticated system might have been imagined.
 - F.** Incorrect. The delay in funding had to do with the Panic of 1837 and the “long depression” (paragraph 5), not because the House of Representatives was not aware of or ready for innovation in the use of electricity.
 - G.** Incorrect. The information in this option focuses on what prompted Morse to consider an electric wire-based communications system. While this option suggests that electrical devices were just beginning to be invented, it does not support the idea that the nation was unaware of the possibilities of electricity.
 - H.** Incorrect. While this option describes an early electrical innovation that may seem quite basic and limited to modern audiences, paragraph 3 states that this innovation was the work of a “pioneer in the new field,” implying that it was quite significant for its time. This option is incorrect because it focuses on those people in the United States who were aware of the possibilities of electricity.
-

55. The question asks which statement best represents a viewpoint held by the author of the passage.

- A.** Incorrect. The author explains that the aboveground wiring was used only because “Cornell suggested that [it was] the fastest and cheapest way” (paragraph 7), not because it would be more successful.
- B.** Incorrect. The author conveys the importance of this advancement in communication without providing detailed information about electrical systems.
- C.** Incorrect. While the Panic of 1837 caused a delay in Morse’s funding, the author shows that Morse received the appropriation in 1843 and was able to overcome the financial setback he faced.
- D. CORRECT.** Paragraph 8 states that “Telegraph lines soon extended westward, and within Morse’s own lifetime they connected the continents of Europe and America.” Therefore, this option is correct because the author presents Morse’s telegraph as a great leap in the ability to quickly communicate messages over distances never before imagined.

- 56.** The question asks how the map provides additional support for a central idea of the passage.
- E. CORRECT.** The map shows the telegraph line crossing continents in 1902, just forty-four years after the first message was sent in 1858. This is a much greater distance than the first line Morse built between “the Supreme Court chamber of the Capitol building and the railroad station in Baltimore” (paragraph 7).
 - F.** Incorrect. The map shows the distance the line covers; it does not indicate Morse’s lack of foresight in seeking patents only in North America.
 - G.** Incorrect. While Gale’s advice was crucial to Morse’s success, the map shows the physical line stretching across continents many years later, after their initial work.
 - H.** Incorrect. While it can be inferred that the telegraph had influence across the world, the amount of influence cannot be determined.
-

- 57.** The question asks how the graph supports the ideas in paragraph 8.
- A.** Incorrect. While it can be implied from the expansion shown on the graph that people possibly welcomed the improvement in long-distance communication, the graph does not state this explicitly.
 - B. CORRECT.** The graph shows the number of messages transmitted from 1870 to 1920. In 1920 almost 160 million messages were transmitted, showing a “dramatic”—almost double— increase from 1910.
 - C.** Incorrect. The graph does not show how many people used the telegraph, but rather it shows the number of messages sent. Additionally, paragraph 8 provides no details about hesitation on the part of individual people.
 - D.** Incorrect. While improvements in recording and interpreting code were made, the graph does not show the effect of this advancement on the speed or number of messages being transmitted.

58. **(-0.4)** $-3.8 + 2.3 - (-1.1)$

Two negatives become a positive. Rewrite the expression to show how $-(-1)$ becomes a positive number:

$$-3.8 + 2.3 + 1.1$$

$$-3.8 + 3.4$$

$$-0.4$$

59. **(150)** Angle M and angle R are supplementary, so the sum of the angles is 180° .

Let m equal the measure of angle M, and let r equal the measure of angle R.

$$r + m = 180$$

The measure of angle R is 5 times the measure of angle M.

$$r = 5m$$

$$5m + m = 180$$

$$6m = 180$$

$$m = \frac{180}{6} = 30$$

$$r = 5m = 5(30) = 150$$

Therefore, the measure of angle R is

60. **(2.5)** Set up a proportion to solve:

$$\frac{\frac{3}{16} \text{ apple}}{\frac{3}{40} \text{ cranberry}} = \frac{x \text{ apple}}{1 \text{ cranberry}}$$

$$\frac{3}{16} \times \frac{40}{3} = x$$

$$\frac{40}{16} = \frac{5}{2} = x$$

$$2.5 = x$$

- 61. (5.5)** The lawn grows $2\frac{1}{8}$ inches every 2 weeks. Find the total number of inches it grows in 8 weeks.

$$8 \div 2 = 4$$

$$4 \times 2\frac{1}{8}$$

$$4 \times 2.125 = 8.5$$

The lawn was 4 inches tall at the beginning of the season.

$$8.5 + 4 = 12.5$$

Mr. Chen mows his lawn every 2 weeks and cuts off the top $1\frac{3}{4}$ inches. Find the total number of inches that are cut off in 8 weeks.

$$8 \div 2 = 4$$

$$4 \times 1\frac{3}{4}$$

$$4 \times 1.75 = 7$$

The height after 8 weeks is the total number of inches grown minus the total number of inches cut off.

$$12.5 - 7 = 5.5$$

- 62. (1)** Since 110 families were surveyed, the median will have 55 values less than or equal to it, and 55 values greater than or equal to it.

If the values in the table were listed in order, they would look like this:

$$\overbrace{0,0,\dots,0}^{45}, \overbrace{1,1,\dots,1}^{32}, \overbrace{2,2,\dots,2}^{19}, \overbrace{3,3,\dots,3}^8, \overbrace{4,4,\dots,4}^6$$

The first row of the table indicates that 45 families had 0 children.

The second row of the table indicates that 32 families had 1 child.

So 77 families had either 0 children or 1 child, and 45 families had 0 children.

Since 55 is between 45 and 77, the median must be a value in the second row of the table.

So the median is 1.

- 63. (A)** First, set up a proportion to determine x , the number of goats Mr. King has.

$$\frac{\text{King}}{\text{Jones}} = \frac{x}{550}$$

$$\frac{x}{550} = \frac{100\%}{100\% + 10\%}$$

Then solve the proportion for x .

$$\frac{x}{550} = \frac{100\%}{100\% + 10\%}$$

$$550(100\%) = x(100\% + 10\%)$$

$$550(100\%) = x(110\%)$$

$$550(1) = x(1.10)$$

$$550 = 1.10x$$

$$550 \div 1.10 = (1.10 \div 1.10)x$$

$$500 = x$$

Finally, determine the difference between the number of goats Mr. Jones has, 550, and the number of goats Mr. King has, 500.

$$550 - 500 = 50$$

Mr. Jones has 50 more goats than Mr. King.

- 64. (G)** Use properties of equations to determine the missing expression.

$$\frac{2y}{x} - \frac{y}{2x} = \frac{\square}{2x}$$

$$\frac{2}{2} \cdot \frac{2y}{x} - \frac{y}{2x} = \frac{\square}{2x}$$

$$\frac{4y}{2x} - \frac{y}{2x} = \frac{\square}{2x}$$

$$\frac{4y - y}{2x} = \frac{\square}{2x}$$

$$\frac{3y}{2x} = \frac{\square}{2x}$$

The missing expression is $3y$.

- 65. (B)** The area of square PQRS is 4 square centimeters. So

$$s^2 = 4$$

$$\sqrt{s^2} = \sqrt{4}$$

$$s = 2 \text{ cm}$$

Sides PS and RS are each a radius of the circle. So the radius of the circle is 2 cm.

The shaded region is $\frac{1}{4}$ of the circle. The area of a circle is $A = \pi r^2$. So the area of the shaded region, in square centimeters, is

$$\frac{1}{4}A = \frac{1}{4}\pi r^2 = \frac{1}{4}\pi(2^2) = \frac{1}{4}\pi(4) = \pi$$

66. (H) Consider the case where $m = 1$.

$$n - m = 66$$

$$n - 1 = 66$$

$$n - 1 + 1 = 66 + 1$$

$$n = 67$$

The list of integers from 1 to 67 contains 67 numbers.

67. (A)
$$\frac{\left(\frac{39(x-3)}{3}\right) + 39}{13}$$

Divide the first 39 by 3.

$$\frac{13(x-3) + 39}{13}$$

Distribute 13 through the parentheses $(x-3)$.

$$\frac{13x - 39 + 39}{13}$$

In the numerator, the terms -39 and 39 cancel out.

$$\frac{13x}{13}$$

Finally, divide by 13 to get x .

68. (G) Jar 1 starts with $\frac{1}{2}$ cup of water. If $\frac{1}{4}$ of its water is poured into Jar 2, then the amount of water added to Jar 2 is $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$ cup.

Jar 2 starts with $\frac{1}{2}$ cup of water. If $\frac{1}{8}$ cup of water is added to it, then the amount of water now in Jar 2 is

$$\frac{1}{2} + \frac{1}{8} = \frac{4}{8} + \frac{1}{8} = \frac{5}{8} \text{ cup.}$$

69. (D) $0.01 = \frac{1}{100}$, which is between $\frac{1}{101}$ and $\frac{1}{99}$.
Therefore, $n + 2 = 101$ and $n = 99$.

70. (H) 72% of the people polled answered yes, so 28% of the people did not answer yes.

Therefore, 56 people is 28% of the total, x .

$$\frac{56}{x} = \frac{28}{100}$$

$$\frac{56}{x} = \frac{7}{25}$$

$$56(25) = 7x$$

$$\frac{56(25)}{7} = x$$

$$8(25) = x$$

$$200 = x$$

- 71. (A)** The scale is 1 inch = 20 feet and the length in the scale drawing is 2 inches, so the actual length is 40 feet.

$$960 \div 40 = 24$$

The actual width is 24 feet.

Let x equal the width of the scale drawing.

$$\frac{1 \text{ in.}}{20 \text{ ft}} = \frac{x \text{ in.}}{24 \text{ ft}}$$

$$x = \frac{24}{20} = 1\frac{1}{5}$$

-
- 72. (H)** There are five odd numbers in the range 1 through 9: 1, 3, 5, 7, and 9.

So the proportion of odd numbers in the range 1 through 9 is $\frac{5}{9}$.

The expected number of odd values in the sequence from the computer program is $300 \cdot \frac{5}{9} = 166.\overline{66}$.

So the best prediction for the number of odd numbers in the sequence is 167.

- 73. (D)** Let m equal the miles driven during Dalia's rental. The total cost, c , can be expressed as an equation.

$$c = 40 + m$$

Dalia spent a total of \$60, which included a 20% off coupon. Find the cost before the coupon by dividing the final cost (\$60) by the percentage paid (80%):

$$\frac{60}{80\%} = \frac{60}{0.80} = 75$$

Use \$75 as the total cost to find m .

$$40 + m = 75$$

$$m = 35$$

Dalia drove 35 miles.

74. (H) Start with a proportion to determine the total number of red candies in the bag.

$$\frac{2}{5} = \frac{r}{25}$$

$$\frac{2}{5}(25) = r$$

$$10 = r$$

There are currently 10 red candies out of 25 candies in the bag. After 5 red candies are removed, there would be 5 red candies left in the bag and 20 total candies.

The probability of randomly drawing a red candy would then be $\frac{5}{20} = \frac{1}{4}$.

75. (C) First write an equation based on the rule described in the item. Let x be the previous number in the sequence and y be the number in the sequence. The ninth number in the sequence is 63.

$$2x + 1 = y$$

Determine the 10th number in the sequence, y , by making $x = 63$.

$$2(63) + 1 = y$$

$$126 + 1 = y$$

$$127 = y$$

Determine the 8th number in the sequence, x , by making $y = 63$.

$$2x + 1 = 63$$

Subtract one from both sides of the equation.

$$2x + (1 - 1) = 63 - 1$$

$$2x = 62$$

$$\frac{2x}{2} = \frac{62}{2}$$

$$x = 31$$

**Response continued
on next page**

Determine the 7th number in the sequence, x , by making $y = 31$.

$$2x + 1 = 31$$

$$2x + (1 - 1) = 31 - 1$$

$$2x = 30$$

$$\frac{2x}{2} = \frac{30}{2}$$

$$x = 15$$

Subtract the 7th number in the sequence from the 10th number.

$$127 - 15 = 112$$

The difference is 112.

-
- 76. (G)** The highest and lowest scores are discarded: 8.2 and 9.0.

To find the mean, add the remaining scores and then divide that sum by the total number of remaining scores.

$$8.9 + 8.5 + 8.4 + 8.6 + 8.8 = 43.2$$

$$43.2 \div 5 = 8.64$$

- 77. (A)** The original piece of wood is $4\frac{1}{2}$ feet long.

The shorter piece is x feet long, and it must be less than half the length of the original piece of wood.

Since half of $4\frac{1}{2}$ is $2\frac{1}{4}$ it follows that $x < 2\frac{1}{4}$.

The shorter piece of wood cannot be 0 feet long, so it follows that $0 < x$.

This gives the compound inequality

$$0 < x < 2\frac{1}{4}$$

- 78. (F)** The area of the shaded region, in square units, is the area of the triangle created by the shaded and unshaded regions minus the area of the triangle created by the unshaded region.

The area of the triangle created by the shaded and unshaded regions is 200 square units.

$$\frac{1}{2}bh = \frac{1}{2}(20)(20) = \frac{1}{2}(400) = 200$$

The area of the triangle created by the unshaded region is 75 square units.

$$\frac{1}{2}bh = \frac{1}{2}(10)(15) = \frac{1}{2}(150) = 75$$

Subtract to find the area of the shaded region.

$$200 - 75 = 125$$

- 79. (A)** The highest temperature was 86° F.

$$F = \frac{9}{5}C + 32$$

$$86 = \frac{9}{5}C + 32$$

Subtract 32 from both sides of the equation:

$$86 - 32 = \frac{9}{5}C - 32$$

$$54 = \frac{9}{5}C$$

Multiply both sides of the equation by $\frac{5}{9}$

$$54\left(\frac{5}{9}\right) = \left(\frac{5}{9}\right)\left(\frac{9}{5}C\right)$$

$$30 = C$$

The lowest temperature was 68° F.

$$F = \frac{9}{5}C + 32$$

$$68 = \frac{9}{5}C + 32$$

**Response continued
on next page**

$$68 - 32 = \frac{9}{5}C$$

$$36 = \frac{9}{5}C$$

$$\left(\frac{5}{9}\right)(36) = C$$

$$20 = C$$

The difference, in degrees Celsius, is 30 minus 20.

$$30 - 20 = 10$$

- 80. (F)** If x is odd, then the two even numbers closest to x are $(x - 1)$ and $(x + 1)$. Find the sum of these two expressions.

$$(x - 1) + (x + 1) = 2x$$

- 81. (B)** The question asks for the amount of the public debt per person, so divide the total public debt by the number of people.

$$\frac{3,600,000,000,000}{250,000,000} =$$

$$\frac{3,600,000,000,000}{250,000,000} =$$

$$\frac{360,000}{25} = 14,400$$

The amount of the public debt per person is about \$14,400.

- 82. (E)** These facts are given:

- N is the midpoint of \overline{MQ} .
- \overline{MN} has a length of x centimeters.
- \overline{MP} has a length of y centimeters.

Use the first two facts to determine that \overline{MQ} has a length of $2x$ centimeters

$$PQ = MQ - MP = 2x - y.$$

- 83. (B)** To find the area of a parallelogram, multiply the length of a side by the altitude for that side.

One property of parallelograms is that opposite sides are the same length.

So the bottom side of the parallelogram is 30 feet long and has an altitude of 20 feet.

Therefore, the area of the parallelogram, in square feet, is $A = bh = 30 \times 20 = 600$.

- 84. (H)** Let t represent the number of loaves of bread produced on Tuesday.

First, determine the number of loaves of bread produced on Tuesday, t , using the number of loaves produced on Wednesday, $t + 100$, the number produced on Thursday, $t - 50$, and the total number produced on these three days, 230.

$$t + t + 100 + t - 50 = 230$$

$$t + t + t + 100 - 50 = 230$$

$$3t + 50 = 230$$

$$3t + (50 - 50) = 230 - 50$$

$$3t = 180$$

$$(3 \div 3)t = 180 \div 3$$

$$t = 60$$

Next, determine the number of loaves of bread produced on Wednesday, $t + 100$, when $t = 60$.

$$t + 100 = 60 + 100 = 160$$

The number of loaves of bread produced on Wednesday is 160.

- 85. (C)** First, find the total number of students who took the quiz.

$$9 + 7 + 4 + 5 + 3 = 28$$

Multiply each quiz score by the number of students who received that score. Add those products together to find the total number of points scored.

$$(60 \times 9) + (70 \times 7) + (80 \times 4) +$$

$$(90 \times 5) + (100 \times 3) = 2,100$$

To find the mean quiz score, divide the total number of points by the number of students who took the quiz.

$$2,100 \div 28 = 75$$

- 86.** (E) Use the properties of equations to solve the inequality for x .

$$x + 4 \geq 3$$

Subtract 4 from both sides of the inequality.

$$x + 4 - 4 \geq 3 - 4$$

$$x \geq -1$$

The graph of $x \geq -1$ will have a point at -1 and will include all values that are greater than, to the right of, -1 . The greater than or equal sign is used, which indicates that the solution includes -1 . So the point at -1 will be solid. Option E is the correct answer.

- 87.** (A) The reciprocal of $\frac{1}{4}$ is added to the reciprocal of 3.

$$\frac{4}{1} + \frac{1}{3} = \frac{12}{3} + \frac{1}{3} = \frac{13}{3}$$

The reciprocal of this sum is $\frac{3}{13}$.

- 88.** (E) Nura's poster is square, so all the side lengths are 13 inches. The area is

$$A = s^2 = 13^2 = 169$$

Latrice's poster is square, so all the side lengths are 15 inches.

$$A = 15^2 = 225$$

Subtract to determine the difference between the areas.

$$225 - 169 = 56$$

The difference, in square inches, is 56.

- 89. (B)** The unit rate for cups of oats per cup of water can be found by dividing the number of cups of oats by the number of cups of water.

$$\frac{\frac{2}{3}}{3\frac{1}{4}}$$

The denominator can be rewritten as $\frac{13}{4}$.

The quotient $\frac{\frac{2}{3}}{\frac{13}{4}}$ can be rewritten as

$$\frac{2}{3} \times \frac{4}{13} = \frac{8}{39}.$$

Therefore, the unit rate for cups of oats per cup of water is $\frac{8}{39}$.

90. (H) $\left(\frac{3}{5} - \frac{1}{2}\right)x = \frac{1}{4} + \frac{2}{2}$

Rewrite with equivalent fractions with like denominators.

$$\left(\frac{3 \times 2}{5 \times 2} - \frac{1 \times 5}{2 \times 5}\right)x = \frac{1 \times 3}{4 \times 3} + \frac{2 \times 4}{3 \times 4}$$

$$\left(\frac{6}{10} - \frac{5}{10}\right)x = \frac{3}{12} + \frac{8}{12}$$

$$\left(\frac{1}{10}\right)x = \frac{11}{12}$$

Multiply both sides of the equation by 10.

$$10\left(\frac{1}{10}\right)x = 10\left(\frac{11}{12}\right)$$

$$x = \frac{110}{12}$$

- 91. (A)** The increase in sales tax percentage is

$$7.5\% - 7.0\% = 0.5\%$$

0.5% of \$200 is

$$(0.5\%)(200) = (0.005)(200) = 1$$

92. (F) $|(-8) - 12 + (-17) - (-31)| - |24|$

Simplify negatives inside the first absolute value brackets.

$$|-8 - 12 - 17 + 31| - |24|$$

Simplify the first absolute value.

$$|-6| - |24|$$

Calculate the absolute values.

$$6 - 24$$

Perform the final subtraction.

$$6 - 24 = -18$$

93. (B) First, use the information given in the table and properties of equations to determine the value of k .

$$8k + 30 + 30 - 2k + k + 5 = 100$$

$$8k - 2k + k + 30 + 30 + 5 = 100$$

$$7k + 65 = 100$$

$$7k + (65 - 65) = 100 - 65$$

$$7k = 35$$

$$k = 5$$

Then determine the percentage of cell phones sold that were blue by finding the value of the expression $30 - 2k$ (given in the table) when $k = 5$.

$$30 - 2k = 30 - 2(5) = 30 - 10 = 20$$

The percentage of cell phones sold that were blue is 20%.

- 94. (E)** First, find the distance between X and Z by adding the distance between X and Y to the distance between Y and Z.

$$1 + 2 = 3$$

Since the distance between X and Z is 3, the midpoint between X and Z is $1\frac{1}{2}$.

The midpoint between X and Z is $1\frac{1}{2}$, and the distance between X and Y is 1. The distance between Y and the midpoint of X and Z is $1\frac{1}{2} - 1 = \frac{1}{2}$.

-
- 95. (B)** Subtract to determine the amount of the increase.

$$1.35 - 1.25 = 0.10$$

Divide the increase by the original price.

$$0.10 \div 1.25 = 0.08$$

Multiply the quotient by 100 to express the decimal answer as a percent.

$$0.08 \times 100 = 8$$

- 96. (G)** Surface area is found by calculating the area of each side, including the base, and adding them all together.

The base of the pyramid measures 10 inches on each side, so the area of the base is

$$10 \times 10 = 100$$

Each triangular face has a base of 10 inches and a height of 12 inches, so the area of each face is

$$\frac{1}{2} \times 10 \times 12 = 60$$

There are 4 triangular faces (because the square base has 4 edges, each of which will have a triangular face). So the total surface area of the pyramid is the sum of the areas of 4 triangles and 1 square.

$$(4 \times 60) + 100 = 240 + 100 = 340 \text{ square inches}$$

-
- 97. (B)** Use the percent increase expression to find the answer:

$$\frac{\text{new price} - \text{original price}}{\text{original price}}$$

$$\frac{6.75 - 6.25}{6.25} = \frac{0.50}{6.25} = 0.08 = 8\%$$

- 98. (G)** If the mean number of points for the first four games is 7, the total number of points earned in those games is 28.

$$4 \times 7 = 28$$

If the mean number of points for all five games is 8, the total number of points earned is 40.

$$5 \times 8 = 40$$

To find the number of points in the fifth game, find the difference between 40 and 28.

$$40 - 28 = 12$$

-
- 99. (B)** First, find the amount, in dollars, that Lian paid for each orange. There are 4 bags with 8 oranges each.

$$4 \times 8 = 32$$

Divide the total cost by the total number of oranges to get the cost per orange.

$$11.52 \div 32 = 0.36$$

Multiply to find the cost of 42 oranges.

$$0.36 \times 42 = 15.12$$

-
- 100. (H)** $\frac{3.6}{0.018} \times \left(\frac{1,000}{1,000}\right) = \frac{3,600}{18} = 200$

- 101. (C)** If 5 gallons are added to the tank per minute for 45 minutes, then $5 \times 45 = 225$ gallons are added to the tank.

The tank started with 75 gallons of water in it. After the 45 minutes, it contains $75 + 225 = 300$ gallons, assuming no loss of water.

The tank has a capacity of 500 gallons, and $\frac{300}{500} = 0.6$.

Rewrite decimal 0.6 as a percent.

$$0.6 = \frac{6}{10} = \frac{60}{100} = 60\%$$

-
- 102. (H)** Each strap requires $1\frac{1}{4}$ yards of ribbon, and ribbon costs \$5.00 a yard.

$$1\frac{1}{4} \times 5 = \frac{5}{4} \times \frac{5}{1} = \frac{25}{4} = 6.25, \text{ so the}$$

ribbon for each strap costs \$6.25.

Misha wants to make 2 straps.

$6.25 \times 2 = 12.50$, so the cost of the ribbon for 2 straps is \$12.50.

- 103. (B)** The graph represents a proportional relationship, which means the y -intercept of the graph is $(0, 0)$.

This means that the point $\left(1, \frac{5}{4}\right)$ represents the unit rate for this situation.

In this situation, x represents the number of questions answered correctly, and y represents the number of points received.

Therefore, for each question answered correctly, the student receives $\frac{5}{4}$, or $1\frac{1}{4}$, points.

- 104. (E)** In the survey, 45 out of 200 adults reported reading the online version of the *Waskegon Bulletin*, and there are 25,000 adults living in Waskegon. Set up a proportion to find the number of adults who read the online version.

$$\frac{45}{200} = \frac{x}{25,000}$$

$$x = \frac{(45)(25,000)}{200} = (45)(125) = 5,625$$

Rounded to the nearest 100, this number is 5,600.

- 105. (C)** There is a proportional relationship between the number of miles hiked, y , and the number of days, x .

$$\frac{y}{x} = \frac{17}{3}$$

$$y = \frac{17}{3}x$$

So the equation $y = \frac{17}{3}x$ describes the relationship.

- 106. (E)** The distance from Carolyn's house to the grocery store is $3 + 2\frac{1}{2} = 5\frac{1}{2}$ miles.

Carolyn walked $1\frac{2}{3}$ miles back, so she

still had $5\frac{1}{2} - 1\frac{2}{3}$ miles left to walk home.

$$5\frac{1}{2} - 1\frac{2}{3} = \frac{11}{2} - \frac{5}{3} =$$

$$\frac{33}{6} - \frac{10}{6} = \frac{23}{6} = 3\frac{5}{6}$$

So Carolyn has $3\frac{5}{6}$ miles left to walk home.

107. (C) Set up a proportion to solve.

$$\frac{1\frac{1}{4} \text{ in.}}{\frac{1}{3} \text{ yr}} = \frac{x \text{ in.}}{1 \text{ yr}}$$

$$1\frac{1}{4} = \frac{1}{3}x$$

$$\frac{5}{4} = \frac{1}{3}x$$

$$\left(\frac{3}{1}\right)\left(\frac{5}{4}\right) = x$$

$$\frac{15}{4} = x$$

$$3\frac{3}{4} = x$$

108. (F) $3(0.01) - 3(0.1) = 0.03 - 0.3 = -0.27$

109. (B) Rewrite the mixed numbers so that they all have equivalent denominators.

$$10\frac{1}{2} + \left(-5\frac{1}{3}\right) - \left(-2\frac{3}{4}\right)$$

$$10\frac{6}{12} + \left(-5\frac{4}{12}\right) - \left(-2\frac{9}{12}\right)$$

Subtracting a negative is the same as adding.

$$10\frac{6}{12} - 5\frac{4}{12} + 2\frac{9}{12}$$

Group the whole numbers together and the fractions together.

$$10\frac{6}{12} - 5\frac{4}{12} + 2\frac{9}{12}$$

$$(10 - 5 + 2) + \left(\frac{6}{12} - \frac{4}{12} + \frac{9}{12}\right)$$

$$7\frac{11}{12}$$

110. (G) Find 5% of 350.

$$(5\%)(350) = (0.05)(350) = 17.5$$

$$350 + 17.5 = 367.50$$

111. (B) The probability of the event is 0.05, which equals 5%, which is less than 50%.

Option A:

An event that is likely has a probability over 50%.

Option B:

An event that is unlikely has a probability less than 50%.

Option C:

An event that is impossible has a 0% probability.

Option D:

An event that is neither likely nor unlikely has a 50% probability.

112. (G) Divide the number of cups of blue paint by the number of cups of red paint to find the constant of proportionality.

$$\frac{1.5}{1} = \frac{6}{4} = 1.5$$

Multiply to find the value of y .

$$11 \times 1.5 = 16.5$$

113. (C) To find the midpoint of a segment, subtract the value on the right from the value on the left and then divide by 2. Then add the result to the value on the left of the segment.

Find the midpoint of \overline{PQ} .

$$1 - (-3) = 4$$

$$4 \div 2 = 2$$

$$2 + (-3) = -1$$

Find the midpoint of \overline{QR} .

$$7 - 1 = 6$$

$$6 \div 2 = 3$$

$$3 + 1 = 4$$

The distance between -1 and 4 on the number line is 5 units.

114. (F) $48 \text{ dollars} \div 16 \text{ cups} = 3 \text{ dollars per cup}$

$$12 \text{ dollars} \div 4 \text{ cups} = 3 \text{ dollars per cup}$$

The constant is the cost per cup (3 dollars).

Answer Key for Sample Form A

1. C	14. H	27. B	40. E	53. C	66. H	79. A	92. F	105. C
2. E	15. C	28. G	41. C	54. E	67. A	80. F	93. B	106. E
3. C	16. H	29. D	42. G	55. D	68. G	81. B	94. E	107. C
4. E	17. A	30. E	43. B	56. E	69. D	82. E	95. B	108. F
5. C	18. G	31. A	44. E	57. B	70. H	83. B	96. G	109. B
6. E	19. D	32. F	45. D	58. -0.4	71. A	84. H	97. B	110. G
7. A	20. G	33. A	46. E	59. 150	72. H	85. C	98. G	111. B
8. F	21. D	34. H	47. D	60. 2.5	73. D	86. E	99. B	112. G
9. D	22. F	35. C	48. E	61. 5.5	74. H	87. A	100. H	113. C
10. H	23. D	36. H	49. D	62. 1	75. C	88. E	101. C	114. F
11. A	24. E	37. B	50. F	63. A	76. G	89. B	102. H	
12. H	25. B	38. E	51. B	64. G	77. A	90. H	103. B	
13. A	26. E	39. C	52. F	65. B	78. F	91. A	104. E	

The New York City Department of Education
2021 Specialized High School Admissions Test

GENERAL DIRECTIONS

Student Name: _____

Identifying Information

Turn to Side 1 of the answer sheet.

Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.

Line 1: Read the statement and sign your name in the space following the word "signature." Do not print your name.

Line 2: Print today's date, using the numbers of the month, the day, and the year.

Line 3: Print your birth date with the number of the month first, then the number of the day, then the last two digits of the year. For example, a birth date of March 1, 2005, would be 3-1-05.

Grid 4: Print the letters of your first name, or as many as will fit, in the boxes. Write your name exactly as you did on the application. If you have a middle initial, print it in the box labeled "MI." Then print the letters of your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space or a hyphen in your name, fill in the circle under the appropriate blank or hyphen.

Make dark marks that completely fill the circles. If you change a mark, be sure to erase the first mark completely.

Grid 5: Carefully copy the order in which you ranked the specialized high schools on your Test Ticket onto Grid 5. If Grid 5 is not marked correctly, your admission to a specialized high school will be affected because your admission is based on the score you achieve and the order in which you rank your school preferences in this grid. The school choices indicated on your answer sheet are final.

Fill in one and only one circle for each school for which you wish to be considered. You may make as few as one or as many as eight choices. To increase your chances of being assigned to one of the specialized high schools, you are encouraged to make more than one choice. You **must** fill in a first choice school. Do not fill in a school more than once. Do not fill in the same school for each choice. Fill in only one circle in a row and only one circle in a column.

Grid 6: Complete the grid with your date of birth. Print the first three letters of the month in the first box, the number of the day in the next box, and the year in the last box. Then fill in the corresponding circles.

Grid 7:

1. Print the name of the school where you are now enrolled in the space at the top of the grid.
2. In the boxes marked "SCHOOL CODE," print the six-digit code that identifies your school and fill in the circle under the corresponding number or letter for each digit of the school code. (You can find your school code on your Test Ticket. If it is not there, tell the proctor, and the proctor will get the school code for you.)
3. If you attend a private or parochial school, fill in the circle marked "P."

Grid 8: Print your student ID number in Grid 8. You can find your student ID number on your Test Ticket. In the boxes, print your nine-digit student ID number. Below each box, fill in the circle containing the same number as in the box.

**DO NOT OPEN THIS BOOKLET
UNTIL YOU ARE TOLD TO DO SO.
TURN YOUR BOOKLET OVER TO THE BACK COVER.**

GENERAL DIRECTIONS, continued

Identifying Information, continued

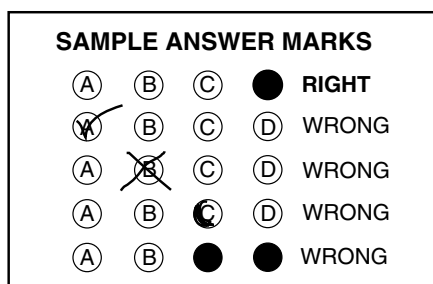
Grid 9: In most cases, Grid 9 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

Turn your answer sheet to Side 2. Print your test booklet letter and numbers, and your name, first name **first**, in the spaces provided.

Marking Your Answers

Mark each of your answers on the answer sheet in the row of circles corresponding to the question number printed in the test booklet. Use only a Number 2 pencil. If you change an answer, be sure to erase it completely. Be careful to avoid making any stray pencil marks on your answer sheet. Each question has only one correct answer. If you mark more than one circle in any answer row, that question will be scored as incorrect.



You can use your test booklet or the provided scrap paper to take notes or solve questions; however, your answers must be recorded on the answer sheet in order to be counted. **You will not be able to mark your answers on the answer sheet after time is up, and answers left in the test booklet will not be scored.**

DO NOT MAKE ANY MARKS ON YOUR ANSWER SHEET OTHER THAN FILLING IN YOUR ANSWER CHOICES.

Planning Your Time

You have 180 minutes to complete the entire test. **How you allot the time between the English Language Arts and Mathematics sections is up to you.** If you begin with the English Language Arts section, you may go on to the Mathematics section as soon as you are ready. Likewise, if you begin with the Mathematics section, you may go on to the English Language Arts section as soon as you are ready. If you complete the test before the allotted time (180 minutes) is over, you may go back to review questions in either section.

Be sure to read the directions for each section carefully. Each question has only one correct answer. Choose the best answer for each question. When you finish a question, go on to the next, until you have completed the last question. Your score is determined by the number of questions you answer correctly. **Answer every question, even if you may not be certain which answer is correct.** Don't spend too much time on a difficult question. Come back to it later if you have time. If time remains, you should check your answers.

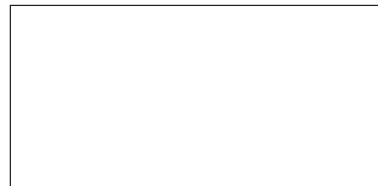
Students must stay for the entire test session.

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B



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ISD32507

SAMPLE TEST, FORM B
PART 1 — ENGLISH LANGUAGE ARTS
57 QUESTIONS

REVISING/EDITING
QUESTIONS 1-9 (PART A AND PART B)

REVISING/EDITING PART A

DIRECTIONS: Read and answer the following questions. You will be asked to recognize and correct errors so that the sentences or short paragraphs follow the conventions of standard written English. You may write in your test booklet as needed to take notes. You should reread relevant parts of the sentences or paragraphs, while being mindful of time, before marking the best answer for each question.

1. Which revision corrects the error in sentence structure in the paragraph?

The land on Earth has not always been separated into the seven continents, at one time a massive supercontinent, known as Pangaea, covered one-third of Earth's surface. Additionally, the supercontinent was surrounded by ocean waters called Panthalassa, much of which were in Earth's Southern Hemisphere. Geologists believe that the supercontinent split apart over millions of years because of the movement of the tectonic plates that form Earth's crust. In fact, experts predict that over the next 250 million years the movement of the plates will cause the seven continents to merge into a supercontinent again.

- A. continents. At
- B. surface; additionally,
- C. Panthalassa. Much
- D. crust, in fact,

2. Which sentence contains an error in its construction and should be revised?

(1) Walking dogs, cleaning kennels, hand-feeding newborn kittens, and supporting the pet-adoption process, the animal shelter is looking for volunteers to help with a variety of tasks. (2) Working at the animal shelter is a great way for young people, especially those who aspire to care for and protect animals, to gain valuable work experience. (3) In addition to hands-on training with animal care, volunteers will learn important job skills, such as punctuality, responsibility, and personal initiative. (4) Caring for animals can also help volunteers develop empathy, which is the awareness and understanding of the feelings of others.

E. sentence 1

F. sentence 2

G. sentence 3

H. sentence 4

3. Which edit should be made to correct the sentence?

The Colosseum in Rome, Italy which is considered one of the “new” Seven Wonders of the World, is the largest amphitheater ever built and once could hold up to 50,000 spectators.

A. Delete the comma after **Rome**.

B. Insert a comma after **Italy**.

C. Delete the comma after **World**.

D. Insert a comma after **built**.

4. How should this sentence be revised?

To promote their club, a bake sale will be sponsored by members of the debate team on Wednesday.

- E.** To promote their club, on Wednesday a bake sale will be sponsored by members of the debate team.
- F.** On Wednesday, to promote their club, a bake sale will be sponsored by members of the debate team.
- G.** To promote their club, members of the debate team will sponsor a bake sale on Wednesday.
- H.** Members of the debate team, on Wednesday to promote their club, will sponsor a bake sale.

CONTINUE TO THE NEXT PAGE ►

REVISING/EDITING PART B

DIRECTIONS: Read the text below and answer the questions following it. You will be asked to improve the writing quality of the text and to correct errors so that the text follows the conventions of standard written English. You should reread relevant parts of the text, while being mindful of time, before marking the best answer for each question.

The Free College Debate

- (1) A college degree has become an essential tool in an increasingly competitive job market. (2) Yet, the price of higher education, at both private and public universities, continues to rise. (3) Helping students cover the cost of attending college is an important issue.

(4) Many people agree that a college education should be a financially realistic option for those who aspire to obtain a degree. (5) For example, in 2017, the New York State legislature passed a bill creating a program to cover the tuition costs for nearly one million students. (6) The state of Tennessee also has a program that offers all students scholarships and mentoring services if they attend one of the state's community colleges. (7) Proponents generally believe that these programs are a step in the right direction for making college affordable for students who would have had to take out loans or who would have decided not to pursue higher education at all.

(8) On the other hand, some people oppose bills like the ones in New York and Tennessee because they believe "free" college programs are unsustainable. (9) In order to implement these types of programs, a state pays the college on behalf of the students using funds from the state's budget, which primarily comes from state taxes. (10) As more students choose to attend college, more funds will be needed to cover the costs. (11) Additionally, many students do not finish college within four years because they switch majors or because they have to work. (12) Critics believe that these circumstances will inevitably lead to an increase in taxes, a decline in the quality of the education offered by the schools, or both. (13) They think narrower college-affordability efforts that target the students who need the most support, such as first-generation college students, may be more effective and viable solutions.

(14) Faculty and students at higher-education institutions can work to keep costs down. (15) In light of increased access to computers, mobile devices, and the Internet, there are more opportunities for students to take courses online, thus reducing the need for and cost of maintaining physical classrooms. (16) Additionally, colleges should account for experience by allowing students to demonstrate their knowledge in order to avoid having to pay to sit through classes on subjects they have already mastered. (17) Similarly, college-bound high school students need to be prepared for college-level work so that they do not have to spend money on remedial classes.

(18) The solutions to the problems associated with rising college costs are not simple. (19) Passing legislation that boosts college affordability will take time, input from experts with different ideas, and careful planning.

5. Which sentence should replace sentence 3 to best state the topic of the passage?
- A. Several states have implemented scholarship programs that allow students to attend public universities and community colleges at a very low tuition rate or for free.
 - B. Determining the most effective way to make college affordable is a complex issue, and there are differing opinions about how to approach the problem.
 - C. Higher-education institutions should reduce the cost of a college education by finding ways to help students avoid paying for unnecessary classes and materials.
 - D. The main concern related to the issue of college affordability is that helping students cover tuition could affect the quality of the education they receive.

6. Read this sentence.

Some note that several states have made their community or state colleges low-cost or free for students with limited resources.

Where should the sentence be added to best support the ideas in the second paragraph (sentences 4–7)?

- E. at the beginning of the paragraph (before sentence 4)
 - F. between sentences 4 and 5
 - G. between sentences 5 and 6
 - H. between sentences 6 and 7
7. Which sentence presents information that shifts away from the topic of the third paragraph (sentences 8–13) and should be deleted?
- A. sentence 10
 - B. sentence 11
 - C. sentence 12
 - D. sentence 13

- 8.** Which phrase should be added before sentence 14 to best transition to the ideas in the fourth paragraph (sentences 14–17)?
- E.** Because college affordability is a complicated issue,
 - F.** With so many opinions about how to make college affordable,
 - G.** Until college becomes more affordable,
 - H.** Although some college affordability programs have been successful,
- 9.** Which concluding sentence should be added after sentence 19 to support the topic of the passage?
- A.** The increasing use of technology in college classrooms and the financial support from tuition scholarship programs will make colleges more affordable for many students.
 - B.** Statewide tuition scholarship programs will make college more affordable for many students, but these programs may lead to new problems.
 - C.** Until the problems associated with the rising cost of college are solved, many students will pursue other options after graduating high school.
 - D.** When the issue of college affordability is resolved, students will be able to make decisions about pursuing higher education without cost being the deciding factor.

READING COMPREHENSION

QUESTIONS 10–57

DIRECTIONS: Read each of the following six texts, and answer the related questions. You may write in your test booklet as needed to take notes. You should reread relevant parts of each text, while being mindful of time, before marking the best answer for each question. Base your answers only on the content within the text.

CONTINUE TO THE NEXT PAGE ►

Massachusetts: Lowell National Historical Park

- 1 During the first half of the 19th century, Lowell, Massachusetts, quickly transformed itself from a farm town to a bustling industrial city. In time, Lowell became a model of industry, gaining global recognition for its state-of-the-art technology, innovative canal and dam system, mill architecture, boardinghouses, churches, and ethnic neighborhoods. Young Yankee¹ women, immigrant families, and European tourists all flocked to Lowell to find work at one of the many textile mills, or visit the industrious city that was becoming a popular tourist destination. As one Scottish traveler observed during his visit to America, "Niagara² and Lowell are the two objects I will longest remember in my American journey, the one the glory of American scenery, the other of American industry." Today, Lowell National Historical Park welcomes visitors to enjoy the sights of Lowell and learn about the history of one of America's most significant industrial cities.
- 2 The Boston merchants who founded Lowell in 1821 and named it after Francis Cabot Lowell chose to locate the town along Massachusetts's Merrimack River to take advantage of the kinetic energy offered by the Pawtucket waterfalls. Over six miles of canals powered the waterwheels of Lowell's mills, whose massive five- and six-story brick buildings dominated the city's landscape. . . . The most recognized of these buildings are the Lowell Manufacturing Company chartered in 1821, the Suffolk or Wannalancit Mill completed around the 1880s, the Boott Mill Company established in 1835, and the Boott Mill Boardinghouse that opened in 1838. By the 1850s, 40 textile mills employing over 10,000 workers stretched for about a mile along the river. . . .
- 3 The city's female workforce was significant in the history of Lowell. From the early to mid-1800s, women left the constricted lifestyle of small rural towns and rural areas for independent industrial city life. Most were young single Yankee girls, who were tired of the limited opportunities offered by their domestic work.³ Women found that Lowell's mills offered monthly wages for their services and provided them room and board. Although these women gained economic independence in Lowell, the mill boardinghouse keepers constantly supervised their social activities, for which they hardly had any time, considering their daily 12- to 14-hour work schedules. At the end of the day, the factory bell signaled the "mill girls" to return to their boardinghouses. They were expected to adhere to the strict code of conduct respecting curfew and attending church.
- 4 Yankee "mill girls" continued to dominate the Lowell workforce until the 1840s, when the city began to find it difficult to compete with the growing industrial development in other New England communities. As profits fell, the mill industry cut wages. These wage cuts, deteriorating working conditions, and long workdays led the "mill girls" to protest and organize strikes. When their demands went unheard, the women left Lowell, and immigrant groups replaced them in the workforce. Despite the low wages and unhealthy work conditions, immigrants were eager to find work.
- 5 The immigrants replacing the Yankee "mill girls" during the 1840s were predominantly Irish Catholics, who traveled to America during the Great Potato Famine. Although Lowell received an influx of Irish families during this time, the Irish were a part of the city's history from its birth,

¹**Yankee:** native to New England

²**Niagara:** a town in northwestern New York State well known as the location of Niagara Falls, a series of waterfalls on the Canadian border

³**domestic work:** household duties like cooking and cleaning

and before the “mill girls” arrived, they built Lowell’s historic canals, mills, and boardinghouses. Initially, Lowell’s Protestant community was slow to welcome Irish immigrants, but the hostility between Yankee Protestants and Irish Catholics eventually disappeared. Irish immigrants dominated the industrial scene until the Civil War, when other immigrant groups began to work in the city mills.

- 6 Like the Irish, the French-Canadians, Greeks, Poles, Portuguese, Russian Jews, and Armenians who came to work in Lowell’s mills faced long work hours, low wages, and poor living conditions in the city’s crowded tenements. By the time Lowell’s industry declined, the city had become an ethnic melting pot, where each group claimed its own distinct neighborhood, like the Irish immigrants’ “New Dublin” or “Acre,” and the French-Canadians’ “Little Canada.” The city officially began to close down its mills in the 1920s and ’30s after Lowell’s outdated mills could no longer compete against the state-of-the-art cotton mills in other communities and working conditions continued to decline as Lowell’s companies stopped reinvesting in their mills. . . . Despite a brief resurgence during World War II, the city shut down its last surviving mill by the mid-1950s.

From “Massachusetts: Lowell National Historical Park”—Public Domain/National Park Service

10. Read this sentence from paragraph 1.

As one Scottish traveler observed during his visit to America, “Niagara and Lowell are the two objects I will longest remember in my American journey, the one the glory of American scenery, the other of American industry.”

The author most likely includes the quotation from the Scottish traveler in order to

- E. suggest that people around the world saw the direct contribution of nature and industry to the United States.
- F. compare the natural and industrial attractions in the United States at that time.
- G. convey the idea that the United States offered both natural and industrial attractions.
- H. imply that the natural resources in the United States contributed to the development of industry.

11. Which sentence from paragraph 2 best supports the idea that Lowell became “a bustling industrial city” (paragraph 1)?
- A. “The Boston merchants who founded Lowell in 1821 and named it after Francis Cabot Lowell chose to locate the town along Massachusetts’s Merrimack River to take advantage of the kinetic energy offered by the Pawtucket waterfalls.”
 - B. “Over six miles of canals powered the waterwheels of Lowell’s mills, whose massive five- and six-story brick buildings dominated the city’s landscape.”
 - C. “The most recognized of these buildings are the Lowell Manufacturing Company chartered in 1821, the Suffolk or Wannalancit Mill completed around the 1880s, the Boott Mill Company established in 1835, and the Boott Mill Boardinghouse that opened in 1838.”
 - D. “By the 1850s, 40 textile mills employing over 10,000 workers stretched for about a mile along the river.”

12. Read this sentence from paragraph 3.

From the early to mid-1800s, women left the constricted lifestyle of small rural towns and rural areas for independent industrial city life.

Which statement best describes how the sentence fits into the overall structure of the passage?

- E. It provides a transition from a description of the mills to a description of the workforce in those mills.
 - F. It indicates a shift in tone from positive and hopeful to negative and dissatisfied with working conditions at the mill.
 - G. It summarizes a challenge that led many women to leave their hometown and seek work in urban areas.
 - H. It begins a comparison of the mill workforce between the mid-1800s and the late 1800s.
13. Read this sentence from paragraph 5.

Although Lowell received an influx of Irish families during this time, the Irish were a part of the city’s history from its birth, and before the “mill girls” arrived, they built Lowell’s historic canals, mills, and boardinghouses.

How does this sentence contribute to the development of ideas in the passage?

- A. It implies that Lowell was founded by early Irish immigrants.
- B. It emphasizes the important role Irish immigrants played in Lowell’s history.
- C. It suggests that the new Irish immigrants were readily accepted into the community.
- D. It highlights the working relationship between the mill girls and the new Irish immigrants.

- 14.** Which sentence best summarizes the mill girls' experience as the dominant workforce in Lowell?
- E.** The mill girls were eager to leave their domestic duties and small towns behind, so they went to work in the mills of Lowell.
 - F.** Originally, the mill girls were satisfied to work in Lowell, but as they left their jobs at the Lowell mills, immigrants arrived to fill the empty positions.
 - G.** Young women left home to work in the Lowell mills, but the mill girls soon became dissatisfied with the working conditions and rigid boardinghouse rules.
 - H.** The mill girls embraced city life when they came to work in Lowell's mills, but when their protests about unfavorable working conditions went unanswered, they left.
- 15.** A central idea that Lowell was "one of America's most significant industrial cities" (paragraph 1) is conveyed in the passage primarily through a description of the
- A.** canals, mills, and boardinghouses that were built by immigrants.
 - B.** mill girls and immigrants who comprised Lowell's workforce.
 - C.** development of the mills and the workforce established to support them.
 - D.** cultural diversity of the people who lived in the area.
- 16.** The reason Lowell lost its status as an industrial leader is best illustrated through the
- E.** description of poor living and working conditions.
 - F.** explanation for why some immigrant groups struggled to live together.
 - G.** comparison with other mills that used modern methods.
 - H.** information about the mills opening temporarily during World War II.

Excerpt from *A Tramp Abroad*

by Mark Twain

- 1 Now and then, while we¹ rested, we watched the laborious ant at his work. I found nothing new in him—certainly nothing to change my opinion of him. It seems to me that in the matter of intellect the ant must be a strangely overrated bird. During many summers now I have watched him, when I ought to have been in better business, and I have not yet come across a living ant that seemed to have any more sense than a dead one. I refer to the ordinary ant, of course; I have had no experience of those wonderful Swiss and African ones which vote, keep drilled armies, . . . and dispute about religion. Those particular ants may be all that the naturalist paints them, but I am persuaded that the average ant is a sham.
- 2 I admit his industry, of course; he is the hardest working creature in the world—when anybody is looking—but his leather-headedness is the point I make against him. He goes out foraging, he makes a capture, and then what does he do? Go home? No; he goes anywhere but home. He doesn't know where home is. His home may be only three feet away; no matter, he can't find it. He makes his capture, as I have said; it is generally something which can be of no sort of use to himself or anybody else; it is usually seven times bigger than it ought to be; he hunts out the awkwardest place to take hold of it; he lifts it bodily up in the air by main force, and starts—not toward home, but in the opposite direction; not calmly and wisely, but with a frantic haste which is wasteful of his strength; he fetches up against a pebble, and, instead of going around it, he climbs over it backwards, dragging his booty after him, tumbles down on the other side, jumps up in a passion, kicks the dust off his clothes, moistens his hands, grabs his property viciously, yanks it this way, then that, shoves it ahead of him a moment, turns tail and lugs it after him another moment, gets madder and madder, then presently hoists it into the air and goes tearing away in an entirely new direction; comes to a weed; it never occurs to him to go around it. No; he must climb it, and he does climb it, dragging his worthless property to the top—which is as bright a thing to do as it would be for me to carry a sack of flour from Heidelberg to Paris by way of Strasburg steeple; when he gets up there he finds that that is not the place; takes a cursory glance at the scenery, and either climbs down again or tumbles down, and starts off once more—as usual, in a new direction. At the end of half an hour he fetches up within six inches of the place he started from, and lays his burden down. Meantime, he has been over all the ground for two yards around, and climbed all the weeds and pebbles he came across. Now he wipes the sweat from his brow, strokes his limbs, and then marches aimlessly off, in as violent a hurry as ever. He traverses a good deal of zig-zag country, and by and by stumbles on his same booty again. He does not remember to have ever seen it before; he looks around to see which is not the way home, grabs his bundle, and starts. He goes through the same adventures he had before; finally stops to rest, and a friend comes along.
- 3 Evidently the friend remarks that a last year's grasshopper leg is a very noble acquisition, and inquires where he got it. Evidently the proprietor does not remember exactly where he did get it, but thinks he got it "around here somewhere." Evidently the friend contracts to help him freight it home. Then, with a judgment peculiarly antic (pun not intentional), they take hold of opposite ends of that grasshopper leg and begin to tug with all their might in opposite directions. Presently they take a rest, and confer together. They decide that something is wrong, they can't make out

¹**we:** the author and his fictional travel companion

what. Then they go at it again, just as before. Same result. Mutual recriminations follow. Evidently each accuses the other of being an obstructionist. They warm up, and the dispute ends in a fight. They lock themselves together and chew each other's jaws for a while; then they roll and tumble on the ground till one loses a horn or a leg and has to haul off for repairs. They make up and go to work again in the same old insane way, but the crippled ant is at a disadvantage; tug as he may, the other one drags off the booty and him at the end of it. Instead of giving up, he hangs on, and gets his shins bruised against every obstruction that comes in the way. By and by, when that grasshopper leg has been dragged all over the same old ground once more, it is finally dumped at about the spot where it originally lay. The two perspiring ants inspect it thoughtfully and decide that dried grasshopper legs are a poor sort of property after all, and then each starts off in a different direction to see if he can't find an old nail or something else that is heavy enough to afford entertainment and at the same time valueless enough to make an ant want to own it. . . .

- 4 Science has recently discovered that the ant does not lay up anything for winter use. . . . He does not work, except when people are looking, and only then when the observer has a green, naturalistic look, and seems to be taking notes. This amounts to deception, and will injure him for the Sunday schools. He has not judgment enough to know what is good to eat from what isn't. This amounts to ignorance, and will impair the world's respect for him. . . . He cannot stroll around a stump and find his way home again. This amounts to idiocy, and once the damaging fact is established, thoughtful people will cease to look up to him. It is strange beyond comprehension that so manifest a humbug as the ant has been able to fool so many nations and keep it up so many ages without being found out.

From A TRAMP ABROAD by Mark Twain—Public Domain

- 17.** The phrase "those wonderful Swiss and African ones which vote, keep drilled armies, . . . and dispute about religion" in paragraph 1 shows that the author
- A.** believes that the behavior of the ants is reflected in other living creatures.
 - B.** acknowledges that his observations of a few do not necessarily apply to all.
 - C.** knows that disproving a commonly held belief is challenging.
 - D.** accepts that there are flaws in his interpretation of the behavior of the ants.
- 18.** In paragraph 2, how do the words "grabs," "yanks," and "tearing away" contribute to the meaning of the excerpt?
- E.** They highlight the ant's belief that his work is important.
 - F.** They illustrate that the ant is more efficient working on his own.
 - G.** They indicate the speed with which the ant completes his tasks.
 - H.** They emphasize the ant's anxious efforts to be productive.

19. Read this sentence from paragraph 2.

At the end of half an hour he fetches up within six inches of the place he started from, and lays his burden down.

How does the sentence contribute to the development of the central idea of the excerpt?

- A. It reveals that the ant is aware of the purposelessness of his efforts and that he does not enjoy his work.
 - B. It highlights how little the ant accomplishes despite the great amount of effort he exerts.
 - C. It suggests that the ant has an industrious attitude and does not easily give up.
 - D. It emphasizes that the ant does not thoughtfully consider how difficult it would be to carry his capture for such a long period of time.
20. The description at the end of paragraph 2 of the ant repeating his actions conveys the idea that
- E. mistakes are necessary in order to make progress.
 - F. rushing to reach a goal may lead to an undesirable outcome.
 - G. breaking out of a familiar pattern of events is difficult.
 - H. industriousness and foolishness is an unfortunate combination.
21. Which sentence from paragraph 2 best supports the idea that sheer “leather-headedness” (paragraph 2) amounts to “ignorance” and “idiocy” (paragraph 4)?
- A. “He goes out foraging, he makes a capture, and then what does he do?”
 - B. “He lifts it bodily up in the air by main force,”
 - C. “When he gets up there he finds that that is not the place;”
 - D. “Now he wipes the sweat from his brow, strokes his limbs, and then marches aimlessly off, in as violent a hurry as ever.”
22. How does the presence of the friend in paragraph 3 influence the first ant’s behavior?
- E. The friend distracts the ant from finding the correct path home.
 - F. The friend inspires the ant to consider a new approach to the situation.
 - G. The friend encourages the ant to continue his worthless efforts.
 - H. The friend tries to prevent the ant from finishing his task.

23. Which of the following best explains the author’s fascination with the ants?
- A. “During many summers now I have watched him, when I ought to have been in better business, and I have not yet come across a living ant that seemed to have any more sense than a dead one.” (paragraph 1)
 - B. “I admit his industry, of course; he is the hardest working creature in the world—” (paragraph 2)
 - C. “Science has recently discovered that the ant does not lay up anything for winter use.” (paragraph 4)
 - D. “It is strange beyond comprehension that so manifest a humbug as the ant has been able to fool so many nations and keep it up so many ages without being found out.” (paragraph 4)

24. Read this sentence from paragraph 3.

Evidently the friend remarks that a last year’s grasshopper leg is a very noble acquisition, and inquires where he got it.

Which statement best describes how the sentence fits into the overall structure of the excerpt?

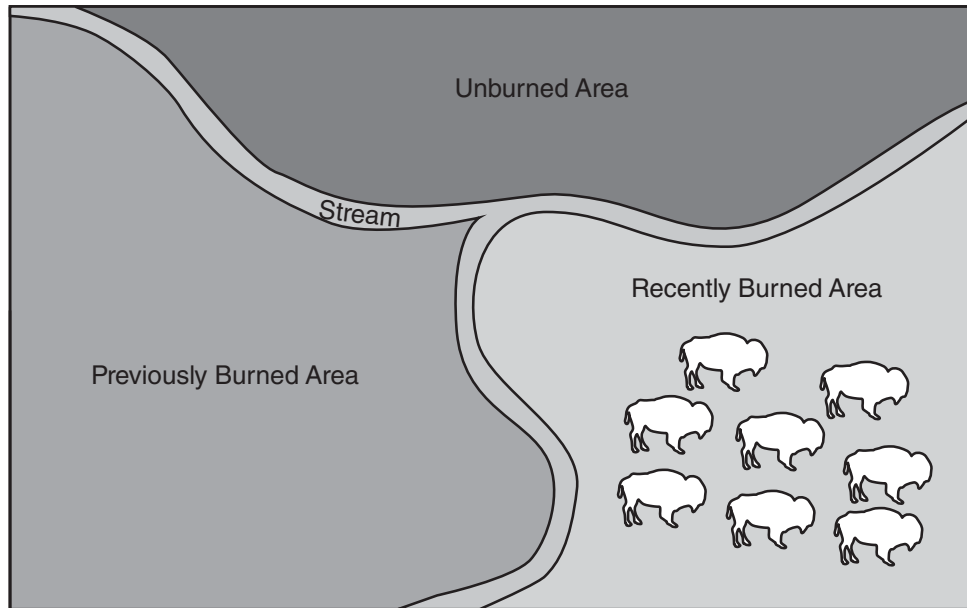
- E. It indicates a shift to the realization that the ants place great importance on an item that has little value.
 - F. It emphasizes a shift from an analysis of the actions of the individual ant to an interpretation of the interaction between ants.
 - G. It introduces a transition to the idea that specific observations about one ant allow for generalizations about all ants.
 - H. It provides a transition to the observation that the ant’s friend is just as purposeful in his efforts toward a futile ending as the first ant is.
25. The central idea that “the average ant is a sham” (paragraph 1) is conveyed mainly through the
- A. comical descriptions of the inability of the ants to accomplish the task at hand.
 - B. comparison between ants from other countries and the ants being observed.
 - C. keen observations that the level of intelligence of ants is mostly overstated.
 - D. conclusion that ants value objects that are of little practical use to them.

Using Fire to Keep a Prairie Healthy

- 1 Inside the 40,000-acre Joseph H. Williams Tallgrass Prairie Preserve in northern Oklahoma, herds of bison roam on the scenic land that is home to hundreds of different species of plants and animals. While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape.
- 2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.
- 3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land management. Intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there. The fires burn away weedy undergrowth and help limit the overcrowding of shrubs and trees in the burn area, creating less competition for water and nutrients. Additionally, the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil.
- 4 One common target of controlled burns at the preserve and the surrounding area is the invasive red cedar tree. A single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life. These tall trees also cast shade that prevents sunlight from reaching the plants beneath them. The fast-growing red cedar trees tend to crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home. An imbalance in one component of the prairie's ecosystem affects the entire web of life. Controlled burns help maintain this ecosystem's delicate balance.
- 5 Of course, these controlled fires are intended to burn only a portion of an area. A total burn, which is a risk with an uncontrolled wildfire, would destroy all wildlife as well as the crops farmers plant for income. The key to using controlled fires is knowing which areas of land to burn and when. Conservation experts at the preserve employ the "patch-burn" approach, meaning they rotate which portion of land is burned each year. They study the land to find out which areas would most benefit from being burned, and then they arrange about a dozen burns over one-third of the land. This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate. The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before.
- 6 Researchers have tracked and studied the variety of plant species and animals that live on the preserve, and their studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out. The patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land. Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.

OVERVIEW OF THE PATCH-BURN METHOD

By using a patch-burn method, conservationists and farmers can reduce the risk of unintentional fires and control where grazing animals, such as bison, roam.



The **unburned area** is overrun with weeds and has the greatest risk of catching fire.

The **previously burned area** is cleared of weeds, and young trees and crops grow freely and thrive.

The **recently burned area** has been cleared of all plants. Bison prefer to eat the fresh grass that will begin to grow in the recently burned area, and they will generally remain in that area until newer, fresher grass is available elsewhere.

26. According to the passage, how did fires started by natural causes prompt American Indians to begin practicing controlled burns?
- E. by drawing animals in to the area to feed on the new growth sprouting from the burned land
 - F. by destroying tall trees and reducing the shade that had hindered the growth of planted crops
 - G. by burning off excess vegetation and increasing the availability of nutrients for the remaining plants
 - H. by causing changes to the bison’s migration habits as bison herds fled from the wildfires on the prairie
27. Targeting red cedar trees in controlled burns affects the animals that live on the prairie mostly by
- A. ensuring that the animals’ main food source has the conditions needed for it to thrive.
 - B. endangering the animals that live near the trees scheduled for removal.
 - C. making sure that the water supply for the animals is sufficient.
 - D. reducing the animals’ natural source of shade and protection from the elements.

28. Read this sentence from paragraph 6.

The patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land.

The author includes this sentence to show that

- E. the conservationists are better qualified to lead preservation efforts than farmers are.
- F. the conservationists are eager to involve others in the preservation of the prairie.
- G. the conservationists’ efforts will restore the original beauty and biodiversity of the region.
- H. the conservationists’ training program should serve as a model for other conservation organizations.

29. Which details from the passage best convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land?
- A. the explanation that conservationists use the alternating burn pattern of the patch-burn method in order to allow the animals in the area to avoid the fire
 - B. the information that conservationists evaluate which land would most benefit from a controlled burn before applying the patch-burn method
 - C. the information that conservationists have determined that the patch-burn method has promoted the growth of species that were at risk of being crowded out
 - D. the explanation that conservationists are able to control the fire in the patch-burn method by arranging separate burns across the designated portion of land
30. Which sentence supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land?
- E. "While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape." (paragraph 1)
 - F. "The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops." (paragraph 2)
 - G. "This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate." (paragraph 5)
 - H. "The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before." (paragraph 5)
31. Read this sentence from paragraph 6.

Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.

The words "counterintuitive" and "strategic" in the sentence convey the idea that

- A. the safest methods are sometimes the least effective at solving complex challenges.
- B. thorough investigation of uncommon methodologies can lead to beneficial results.
- C. detailed planning can ensure that a potentially destructive action has a positive impact.
- D. plans that entail a certain amount of risk almost always result in success.

- 32.** With which statement would the author most likely agree?
- E.** It is important to explain the purposes and the risks of controlled burns to the people living near a proposed burn area.
 - F.** It is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
 - G.** Monitoring animals' reactions after a controlled burn on the prairie is a minor part of scientists' research.
 - H.** Conservationists should consider the helpful aspects of invasive species before executing a controlled burn.
- 33.** How do the diagram and its text provide additional support for the topic presented in the passage?
- A.** by depicting how the landscape in a given area changes as the patch-burn method is applied
 - B.** by indicating that patch-burn fires are best suited for use in areas with certain features
 - C.** by revealing that the patch-burn method is used primarily on uninhabited areas of land
 - D.** by comparing the size of the area burned by the patch-burn method with that of unburned areas

CONTINUE TO THE NEXT PAGE ►

Cross-Purposes

What I am is *built*: concrete and steel.
I defy gravity. I am what every athlete
wants: to remain at the apex of the leap,
up in the air. And yet I am useful, too:
5 cars, trucks, people, even trains
make their way across my broad back.
Swallows and ospreys¹ nest in my trusses.

*What I am is motion. I am water, and I am older
than anything else you know. No human
10 built me. I am gravity's best friend; I pool
and flow wherever gravity takes me.
I am the blood flowing in the runner's chest,
and I catch everything: from the hills,
the mountains. It all washes down through me.*

15 What you are is an *accident*,
what happens to rain when rain gives in
to Earth's gravitational pull.
You are some tears dribbling from a mountain's
eye, running down the pavements
20 of small towns, into the cities, to the sea.
You are the path of least resistance.

*What I am is power. You, of course,
have none: you are a static lump, an artifact
slowly decaying. But my regal flow
25 nourishes grasses, permits empires to rise.
Those who made you will break you,
in time, replacing you with yet another
clumsy structure. I have seen. I know.*

"Clumsy"? Being rebuilt makes me
30 a friend of time, does it not? And it means
that I have siblings—those "clumsy" structures,
my sisters and brothers.
We stitch across the rip you make.
We are steel thread to the human needle.
35 We bind you up. We sew you.

*And I sow into you; in every cranny
of your superstructure my vapors cling.
They bring out your softness, your rust.*

¹**ospreys:** large birds

*Boast your best, and boast better yet.
40 I am listening to the bright hum
of the wind in your wires. Because I am,
above all else, patient. I will wait for you.*

- 34.** How does the similar construction of the sentence in line 1 and the sentence in line 8 contribute to the meaning of the poem?
- E.** It introduces the intended permanence of the structure and the ever-changing fluidity of the water.
 - F.** It shows that the structure can bridge the gap caused by the water.
 - G.** It suggests that the inflexible structure has more limitations than the adaptable water does.
 - H.** It contrasts the stability of the structure with the instability of the water.
- 35.** Read lines 2–4 and lines 12–14 from the poem.

**I am what every athlete
wants: to remain at the apex of the leap,
up in the air.**

***I am the blood flowing in the runner’s chest,
and I catch everything: from the hills,
the mountains.***

How do the lines contribute to the development of a central idea of the poem?

- A.** They establish that both the structure and the water have endurance and control.
 - B.** They highlight that both the structure and the water are powerful and impressive.
 - C.** They suggest that the structure and the water are unaware of how similar they are.
 - D.** They reveal that the structure and the water are surprised that they are interrelated.
- 36.** The use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that the
- E.** forms water can take are less diverse than the types of structures that exist.
 - F.** number of human-made structures is rapidly increasing.
 - G.** water passes under many similar-looking structures as it flows.
 - H.** structure is powerful because it is one of many.

37. The comparison to sewing in lines 33–35 helps show that the structure
- A. enhances the beauty of the natural landscape.
 - B. brings people together more effectively than nature does.
 - C. provides clear boundaries for natural environments.
 - D. serves as a means for people to overcome an obstacle created by nature.
38. The last stanza (lines 36–42) conveys a central idea of the poem by
- E. demonstrating that both the structure and the water depend on each other to fulfill their functions.
 - F. implying that a stronger structure would be able to resist the degradation caused by the water.
 - G. revealing that the passage of time will render both the structure and the water obsolete.
 - H. suggesting that the water will eventually weaken the structure and will continue to exist after the structure is gone.
39. Read lines 41–42 from the poem.

***Because I am,
above all else, patient. I will wait for you.***

Which of the following supports what is implied in these lines?

- A. "I am older / than anything else you know." (lines 8–9)
- B. "No human / built me." (lines 9–10)
- C. "It all washes down through me." (line 14)
- D. "Those who made you will break you," (line 26)

- 40.** How does the poet develop the points of view of the structure and the water?
- E.** by giving an account of a discussion between them about the future of human civilization
 - F.** by narrating a debate they have over their impact on the environment
 - G.** by illustrating the unique power they each possess over nature
 - H.** by using personification to allow them to debate who is more important
- 41.** How does the form of the poem contribute to its meaning?
- A.** The use of an equal number of lines in each stanza emphasizes that both speakers are equally important.
 - B.** The use of italics in some of the stanzas indicates the increasing tension between the structure and the water.
 - C.** The alternating positions of the stanzas highlight the opposing points of view of the speakers.
 - D.** The lack of a regular rhyme scheme or meter reflects the way the water changes the structure and the way the water itself changes.

Zitkala-Sa (Gertrude Simmons Bonnin) was a Native American writer, musician, teacher, and political activist who was raised on the Yankton Sioux Reservation in South Dakota. In 1900 she published "Impressions of an Indian Childhood" (the term Indian was commonly used at the time to refer to Native American people) to expose readers to what life is like on a reservation.

Excerpt from "Impressions of an Indian Childhood"

by Zitkala-Sa

- 1 Soon after breakfast Mother sometimes began her beadwork. On a bright, clear day, she pulled out the wooden pegs that pinned the skirt of our wigwam¹ to the ground, and rolled the canvas part way up on its frame of slender poles. Then the cool morning breezes swept freely through our dwelling, now and then wafting the perfume of sweet grasses from newly burnt prairie.
- 2 Untying the long tasseled strings that bound a small brown buckskin² bag, my mother spread upon a mat beside her bunches of colored beads, just as an artist arranges the paints upon his palette. On a lapboard she smoothed out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade, she trimmed the buckskin into shape. Often she worked upon small moccasins for her small daughter. Then I became intensely interested in her designing. With a proud, beaming face, I watched her work. In [my] imagination, I saw myself walking in a new pair of snugly fitting moccasins. I felt the envious eyes of my playmates upon the pretty red beads decorating my feet.
- 3 Close beside my mother I sat on a rug, with a scrap of buckskin in one hand and an awl in the other. This was the beginning of my practical observation lessons in the art of beadwork. From a skein³ of finely twisted threads of silvery sinews my mother pulled out a single one. With an awl she pierced the buckskin, and skillfully threaded it with the white sinew. Picking up the tiny beads one by one, she strung them with the point of her thread, always twisting it carefully after every stitch.
- 4 It took many trials before I learned how to knot my sinew thread on the point of my finger, as I saw her do. Then the next difficulty was in keeping my thread stiffly twisted, so that I could easily string my beads upon it. My mother required of me original designs for my lessons in beading. At first I frequently ensnared many a sunny hour into working a long design. Soon I learned from self-inflicted punishment to refrain from drawing complex patterns, for I had to finish whatever I began.
- 5 After some experience I usually drew easy and simple crosses and squares. These were some of the set forms. My original designs were not always symmetrical nor sufficiently characteristic, two faults with which my mother had little patience. The quietness of her oversight made me feel strongly responsible and dependent upon my own judgment. She treated me as a dignified little individual as long as I was on my good behavior; and how humiliated I was when some boldness of mine drew forth a rebuke from her!

¹**wigwam:** hut with an arched framework of poles covered with bark, mats, or animal hides

²**buckskin:** leather made from the skin of a male deer

³**skein:** coiled length of yarn or other thread loosely wound on a reel

- 6 In the choice of colors she left me to my own taste. I was pleased with an outline of yellow upon a background of dark blue, or a combination of red and myrtle-green. There was another of red with a bluish-gray that was more conventionally used. When I became a little familiar with designing and the various pleasing combinations of color, a harder lesson was given me. It was the sewing on, instead of beads, some tinted porcupine quills, moistened and flattened between the nails of the thumb and forefinger. My mother cut off the prickly ends and burned them at once in the centre fire. These sharp points were poisonous, and worked into the flesh wherever they lodged. For this reason, my mother said, I should not do much alone in quills until I was as tall as my cousin Warca-Ziwin.
- 7 Always after these confining lessons I was wild with surplus spirits, and found joyous relief in running loose in the open again. Many a summer afternoon a party of four or five of my playmates roamed over the hills with me. We each carried a light sharpened rod about four feet long, with which we pried up certain sweet roots. When we had eaten all the choice roots we chanced upon, we shouldered our rods and strayed off into patches of a stalky plant under whose yellow blossoms we found little crystal drops of gum. Drop by drop we gathered this nature's rock-candy, until each of us could boast of a lump the size of a small bird's egg. Soon satiated with its woody flavor, we tossed away our gum, to return again to the sweet roots.

From "Impressions of an Indian Childhood" by Zitkala-Sa—Public Domain

A BRIEF HISTORY OF BEADWORK IN SOUTH DAKOTA

Date	Event
1500s	The Dakota use beads made from bones, shells, stones, and animal teeth. European traders bring glass beads to North America.
Late 1600s	The Dakota begin trading with the French in Minnesota.
1830s	The Dakota begin using glass beads in clothing, artwork, and decorations in place of Native-made beads.
1862–1865	The Dakota are expelled from their homelands in Minnesota as a result of the U.S.-Dakota War.
1900s–1920s	The Dakota create items to sell outside their community.

Source: MNopedia

- 42.** In paragraph 1, the phrases “cool morning breezes swept freely” and “wafting the perfume of sweet grasses” affect the tone of the excerpt by suggesting
- E.** the sadness that the author feels reflecting upon her former way of life.
 - F.** the enthusiasm with which the author approached her work indoors.
 - G.** the fond feelings that the author has toward her childhood experiences.
 - H.** the mix of emotions that the author feels toward her work and her mother.
- 43.** The phrase “just as an artist arranges the paints upon his palette” in paragraph 2 suggests that
- A.** beadwork is a true form of art.
 - B.** color is a source of artistic inspiration.
 - C.** all artistic activities begin with a series of steps.
 - D.** the beadworker tries to imitate art.
- 44.** The author’s use of sequence in paragraphs 1 and 2 contributes to the development of ideas in the excerpt by
- E.** listing the many steps that are involved in the process of beading in order to explain its difficulty and complexity.
 - F.** conveying the importance of following the steps of the beading process in a precise order to work most efficiently.
 - G.** emphasizing the time required to fully prepare for and execute the many large and small tasks in the activity of beading.
 - H.** detailing each step in preparation for beading in order to highlight the author’s enthusiasm for the work.
- 45.** The details in paragraph 3 convey a central idea of the excerpt by suggesting that
- A.** the author was interested in the work because she knew her mother was making something for her.
 - B.** the author had difficulty learning through observation but wanted to help her mother.
 - C.** the author was determined to behave according to her mother’s standards and sought her approval.
 - D.** the author had great admiration for her mother’s precision and mastery of her craft.

- 46.** Which sentence best summarizes the process of beading that is described in the excerpt?
- E.** Take a buckskin bag full of beads and spread them out on a mat in different colors like a paint palette; take a double sheet of buckskin and smooth it out on a table; take a sinew and awl and thread the beads onto the buckskin in a desired pattern.
 - F.** Cut the double sheet of buckskin into a shape; take a skein of sinew and pierce the buckskin with an awl; thread the sinew with beads of many different colors in a simple or complex pattern; twist the sinew to keep it tight after every stitch into the buckskin.
 - G.** Arrange the beads into groups of colors on a mat; smooth out a double sheet of buckskin and cut it to shape; take a single thread of sinew; pierce the buckskin with an awl; thread the buckskin with the sinew and string it with beads, carefully twisting after every stitch.
 - H.** Gather beads, buckskin, sinew, and awl and place them on a mat; cut the buckskin into the desired shape; decide on a pattern for the beads and create it using the sinews and the awl; thread the beads onto the sinew in the desired pattern and twist it tight.
- 47.** The idea that mastering moccasin design and creation requires experience is best illustrated in the excerpt through
- A.** the information about the advanced technique of incorporating porcupine quills into a design.
 - B.** the descriptions of the special materials that must be used to make decorated moccasins.
 - C.** the descriptions of the various color combinations that make an attractive moccasin design.
 - D.** the example of the author successfully and independently using a sharpened rod.
- 48.** How does the author distinguish her point of view from that of her mother?
- E.** by describing their techniques for knotting sinew thread (paragraph 4)
 - F.** by describing their approaches to beadwork design (paragraph 5)
 - G.** by stating her mother’s instructions on working with quills (paragraph 6)
 - H.** by stating her mother’s ideas about activities after lessons (paragraph 7)

49. Read this sentence from paragraph 7.

Always after these confining lessons I was wild with surplus spirits, and found joyous relief in running loose in the open again.

Which sentence best describes how this sentence fits into the overall structure of the excerpt?

- A. It introduces a shift from the author’s demanding relationship with her mother to her more relaxed relationships with friends.
 - B. It signals a change from the challenging aspects of life on the reservation to the advantages of living on the prairie.
 - C. It highlights a contrast between the focus and control required while working and the freedom of having fun outside.
 - D. It concludes the progression of events in the narrative by describing the sequence of events at the end of the author’s day.
50. The table after paragraph 7 expands upon a central idea in the excerpt because it shows that
- E. the craft that the author was learning was a tradition that endured through many generations and changes.
 - F. the author’s family incorporated traditional materials into their craft as a way of resisting the influence from European traders.
 - G. the uniqueness of the cultural tradition that the author learned as a child was eventually recognized in Europe.
 - H. the author was able to incorporate color into her craftwork as a result of trade with other peoples.

CONTINUE TO THE NEXT PAGE ►

Excerpt from "Niagara Falls"

by Rupert Brooke

- 1 The real secret of the beauty and terror of the Falls is not their height or width, but the feeling of colossal power and of unintelligible disaster caused by the plunge of that vast body of water. If that were taken away, there would be little visible change, but the heart would be gone.
- 2 The American Falls do not inspire this feeling in the same way as the Canadian. It is because they are less in volume, and because the water does not fall so much into one place. By comparison their beauty is almost delicate and fragile. They are extraordinarily level, one long curtain of lacework and woven foam. Seen from opposite, when the sun is on them, they are blindingly white, and the clouds of spray show dark against them. With both Falls the colour of the water is the ever-altering wonder. Greens and blues, purples and whites, melt into one another, fade, and come again, and change with the changing sun. Sometimes they are as richly diaphanous¹ as a precious stone, and glow from within with a deep, inexplicable light. Sometimes the white intricacies of dropping foam become opaque and creamy. And always there are the rainbows. If you come suddenly upon the Falls from above, a great double rainbow, very vivid, spanning the extent of spray from top to bottom, is the first thing you see. If you wander along the cliff opposite, a bow springs into being in the American Falls, accompanies you courteously on your walk, dwindles and dies as the mist ends, and awakens again as you reach the Canadian tumult. And the bold traveller who attempts the trip under the American Falls sees, when he dare open his eyes to anything, tiny baby rainbows, some four or five yards in span, leaping from rock to rock among the foam, and gambolling beside him, barely out of hand's reach, as he goes. One I saw in that place was a complete circle, such as I have never seen before, and so near that I could put my foot on it. It is a terrifying journey, beneath and behind the Falls. The senses are battered and bewildered by the thunder of the water and the assault of wind and spray; or rather, the sound is not of falling water, but merely of falling; a noise of unspecified ruin. So, if you are close behind the endless clamour, the sight cannot recognise liquid in the masses that hurl past. You are dimly and pitifully aware that sheets of light and darkness are falling in great curves in front of you. Dull omnipresent foam washes the face. Farther away, in the roar and hissing, clouds of spray seem literally to slide down some invisible plane of air.
- 3 Beyond the foot of the Falls the river is like a slipping floor of marble, green with veins of dirty white, made by the scum that was foam. It slides very quietly and slowly down for a mile or two, sullenly exhausted. Then it turns to a dull sage green, and hurries more swiftly, smooth and ominous. As the walls of the ravine close in, trouble stirs, and the waters boil and eddy. These are the lower rapids, a sight more terrifying than the Falls, because less intelligible. Close in its bands of rock the river surges tumultuously forward, writhing and leaping as if inspired by a demon. It is pressed by the straits into a visibly convex form. Great planes of water slide past. Sometimes it is thrown up into a pinnacle of foam higher than a house, or leaps with incredible speed from the crest of one vast wave to another, along the shining curve between, like the spring of a wild beast. Its motion continually suggests muscular action. The power manifest in these rapids moves one with a different sense of awe and terror from that of the Falls. Here the inhuman life and strength are spontaneous, active, almost resolute. . . . A place of fear.

¹**diaphanous:** sheer, translucent

4 One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent. The Victorian lies very close below the surface in every man. There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara. I could not get out of my mind the thought of a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life—caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased. In all comparisons that rise in the heart, the river, with its multitudinous waves and its single current, likens itself to a life, whether of an individual or of a community. A man's life is of many flashing moments, and yet one stream; a nation's flows through all its citizens, and yet is more than they. In such places, one is aware, with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood. Some go down to it unreluctant, and meet it, like the river, not without nobility. And as incessant, as inevitable, and as unavailing as the spray that hangs over the Falls, is the white cloud of human crying. . . . With some such thoughts does the platitudinous² heart win from the confusion and thunder of a Niagara peace that the quietest plains or most stable hills can never give.

From LETTERS FROM AMERICA by Rupert Brooke—Public Domain

²**platitudinous:** clichéd, common

51. The central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1) is conveyed in paragraph 2 through a description of
- A. the glow of the precious stones visible within the water.
 - B. the dynamic flow of the colors that are visible in the water.
 - C. the sudden appearance and disappearance of rainbows.
 - D. the sounds associated with a sense of falling.

52. Read this sentence from paragraph 2.

They are extraordinarily level, one long curtain of lacework and woven foam.

What is the effect of comparing the American Falls to a “long curtain of lacework and woven foam”?

- E. It demonstrates the timelessness of the American Falls.
- F. It conveys the secretive nature of the American Falls.
- G. It illustrates the elegant uniformity of the American Falls.
- H. It communicates the intense strength of the American Falls.

53. Read this sentence from paragraph 3.

These are the lower rapids, a sight more terrifying than the Falls, because less intelligible.

Which statement best describes how the sentence fits into the overall structure of the excerpt?

- A. It signals a change from the positive aspects of the Falls to the negative aspects.
- B. It indicates a progression from the literal description of the water to a discussion of timeless truths.
- C. It reinforces a shift from the qualities of the Falls to the qualities of the river.
- D. It introduces a contrast between the obvious and the hidden features of the rapids.

54. Which sentence from the excerpt best supports the idea that the essence of the Falls lies in their emotional impact?

- E. "If that were taken away, there would be little visible change, but the heart would be gone." (paragraph 1)
- F. "By comparison their beauty is almost delicate and fragile." (paragraph 2)
- G. "One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent." (paragraph 4)
- H. "A man's life is of many flashing moments, and yet one stream; a nation's flows through all its citizens, and yet is more than they." (paragraph 4)

55. Read this sentence from paragraph 4.

There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara.

The sentence most contributes to the development of ideas in the excerpt by

- A. suggesting that viewing the Falls can be a life-changing experience.
- B. showing that the cliffs of the Falls are a good place for self-examination.
- C. emphasizing that the grandeur of the Falls seems impossible to grasp.
- D. highlighting the type of reflection that is inspired by a visit to the Falls.

- 56.** In paragraph 4, the idea that human life and history travel toward the same ending is illustrated mainly through
- E.** the discussion of how the rainbows visible in the Falls are like the art and beauty created by humankind.
 - F.** the comparison between the movement of water in the Falls and the human experience.
 - G.** the inclusion of details that show that every observer’s experience with the Falls is different.
 - H.** the acknowledgment that contemplating the Falls at night sparks an awareness of humankind’s destiny.
- 57.** With which statement would the author of this excerpt most likely agree?
- A.** A sense of ease and assurance comes with accepting one’s fate.
 - B.** No matter where one’s path goes in life, one will always have regrets.
 - C.** The best way to overcome fear is to recognize it and then defy it.
 - D.** Reason will die out with humanity, but art will remain immortal.

PART 2 — MATHEMATICS

57 QUESTIONS

IMPORTANT NOTES

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
 - (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be determined from the information given.
 - (3) Assume that a diagram is in one plane unless the question specifically states that it is not.
 - (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, lines on a graph that appear to be parallel can be assumed to be parallel. This is also true for concurrent lines, straight lines, collinear points, right angles, etc.
 - (5) Reduce (simplify) all fractions to lowest terms.
-

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GRID-IN QUESTIONS

QUESTIONS 58–62

DIRECTIONS: Solve each problem. On the answer sheet, write your answer in the boxes at the top of the grid. Start on the left side of each grid. Print only one number or symbol in each box. Under each box, fill in the circle that matches the number or symbol you wrote above.

- Do not fill in a circle under an unused box.
- Do not leave a box blank in the middle of an answer.

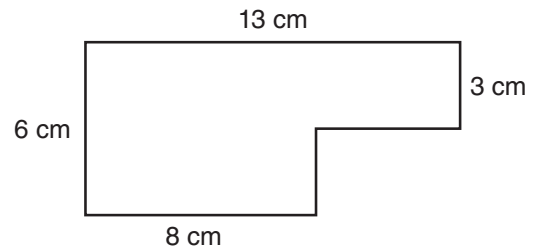
58.

$$\frac{3}{5}(2x + 5) - 2x$$

After the expression above is simplified, what is the coefficient of x expressed as a decimal?

59. Two number cubes have sides labeled 1 through 6. Both number cubes are rolled. How many different outcomes will have a sum of 6?

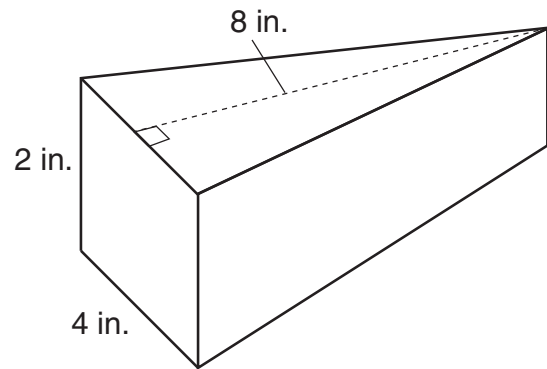
60.



The figure above shows a scale drawing of a garden, where 1 centimeter represents 2.5 meters. What is the perimeter of the actual garden in meters?

61. At one location, the temperature increased from -7° F to 4° F between 5:00 a.m. and 9:00 a.m. By 11:00 a.m., the temperature was 3.5 times **greater** than the 9:00 a.m. temperature. What was the total increase in temperature between 5:00 a.m. and 11:00 a.m., in degrees Fahrenheit?

62. The figure below is a triangular prism. The lateral sides are rectangles.



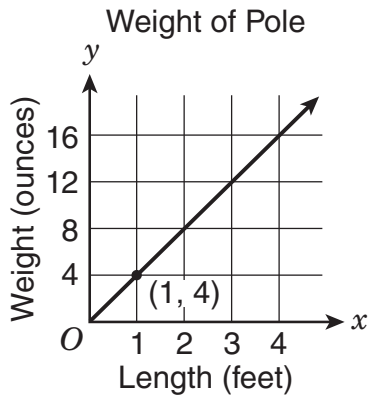
What is the volume of the figure, in cubic inches?

MULTIPLE CHOICE QUESTIONS

QUESTIONS 63–114

DIRECTIONS: Solve each problem. Select the best answer from the choices given. Mark the letter of your answer on the answer sheet. When you are solving problems, you can write in the test booklet or on the scrap paper given to you.

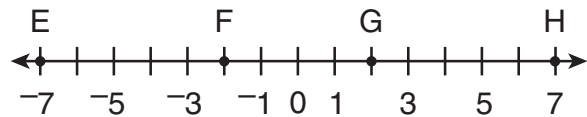
- 63.** This graph shows y , the weight of a pole of length x .



What is represented by the point with coordinates $(1, 4)$?

- A.** The unit rate is 4 ounces per foot.
- B.** The y -intercept is 4.
- C.** A pole 4 feet long weighs 1 ounce.
- D.** The length increases 4 feet for each 1 ounce of weight.

- 64.** The number line shows points E, F, G, and H.



Which point represents the sum of $2.5 + (-4.5)$?

- E.** point E
- F.** point F
- G.** point G
- H.** point H

- 65.** If $\frac{9}{2x} = \frac{3y}{8}$, where $x \neq 0$ and $y \neq 0$, what is the product of x and y ?

- A.** 4
- B.** 6
- C.** 12
- D.** 16

66. A car dealership is having a sale where all cars have a 12% discount. What is the discounted price of a car that originally cost \$15,600?

- E. \$13,728
- F. \$14,300
- G. \$14,400
- H. \$15,588

67. $4\frac{2}{3} \div 2\frac{1}{2} =$

- A. $\frac{15}{28}$
- B. $1\frac{13}{15}$
- C. $2\frac{1}{3}$
- D. $3\frac{1}{3}$

68. In a sports league each team has 36 players and 3 coaches. There are also a number of team assistants. The ratio of team assistants to players is $\frac{1}{6}$. What is the ratio of coaches to assistants?

- E. $\frac{1}{4}$
- F. $\frac{1}{2}$
- G. $\frac{2}{3}$
- H. $\frac{5}{6}$

69. Lena is building a fence. She will need to dig holes to help support the posts that hold up the fence. The holes need to have a depth of $3\frac{1}{3}$ feet below the ground. Each post is 10 feet long. What is the height of the part of the post that is above the ground?

- A. $6\frac{2}{3}$ feet
- B. $7\frac{1}{3}$ feet
- C. 10 feet
- D. $13\frac{1}{3}$ feet

70. $p + 2r = r(p + 1) + 1$

In the equation above, if $r = 2$, what is the value of p ?

- E.** 0
- F.** 1
- G.** 2
- H.** 3

71. Karen reads at the rate of 60 pages per day. Martina reads 25 percent more pages per day than Karen. If the two students begin 1,500-page reading assignments on the same day, how many days sooner will Martina complete the assignment than Karen?

- A.** 4
- B.** 5
- C.** 7
- D.** 15

72. Claire is running on a circular track. She has already run 650 meters. Each lap around the track is a distance of 120 meters. Her goal is to run at least 2,500 meters in all. How many more laps does she need to complete in order to reach her goal?

- E.** 5
- F.** 6
- G.** 15
- H.** 16

73. A company with 200 employees grew in size by 25% between 2005 and 2010. The company grew again by 10% between 2010 and 2015. What was the total number of employees in 2015?

- A.** 235
- B.** 260
- C.** 270
- D.** 275

74. A bowl contains 12 green candies, 4 yellow candies, and some red candies. The probability of choosing a green candy at random is twice as great as the probability of choosing a red candy at random. What is the probability of choosing a yellow candy at random?

- E. $\frac{2}{11}$
- F. $\frac{2}{9}$
- G. $\frac{1}{4}$
- H. $\frac{3}{11}$

75. A seller at an Internet site reports that 99.7% of his sales have resulted in satisfied customers. Based on the report, what fraction of the sales have resulted in unsatisfied customers?

- A. $\frac{1}{997}$
- B. $\frac{3}{1,000}$
- C. $\frac{3}{997}$
- D. $\frac{1}{300}$

76. Serena was studying the number of water stations for different lengths of races. The table below shows the data she collected.

WATER STATIONS IN RACES

Length of Race (mi)	Number of Water Stations
3	2
12	8
18	12

Which equation represents the relationship between the length of the race, x miles, and the number of water stations, y ?

- E. $y = \frac{2}{3}x$
- F. $y = \frac{3}{2}x$
- G. $y = x + 6$
- H. $y = x - 1$

77. Centerville will hold a vote on whether to build a new park. The town council surveyed a random sample of 200 residents to determine whether they would be in favor of building this park. The table shows the results of the survey.

SURVEY RESULTS

Opinion	Number of Residents
Yes	142
No	38
Undecided	20

The mayor estimates that half the undecided voters will vote in favor of building the park. Based on the survey results, if the mayor is correct, how many of the 24,100 voters will be in favor of building the park?

- A. 17,111
- B. 18,316
- C. 19,401
- D. 19,521

78. $-\frac{1}{49}, -49, -\frac{1}{7}, -1$

Which number shown above is the **greatest**?

- E. $-\frac{1}{49}$
- F. -49
- G. $-\frac{1}{7}$
- H. -1

79. What decimal is equivalent to $\frac{13}{-11}$?

- A. -1.18
- B. $-1.\overline{118}$
- C. $-1.\overline{18}$
- D. $-1.\overline{81}$

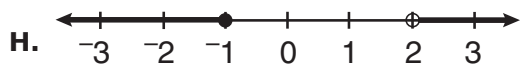
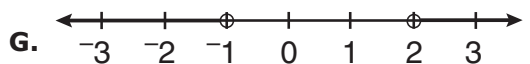
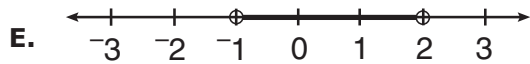
80. Each loaf of bread a baker makes requires $\frac{1}{5}$ ounce of salt. How many loaves can be made if 40 ounces of salt are used?

- E. 8
- F. 20
- G. 45
- H. 200

81. What is the value of $\frac{\left(1\frac{5}{7} - 1\frac{6}{7}\right)}{\left(3\frac{4}{7} - 3\frac{6}{7}\right)}$?

- A. $-\frac{1}{2}$
- B. $-\frac{1}{7}$
- C. $\frac{1}{7}$
- D. $\frac{1}{2}$

82. Which number line represents the values of x that satisfy the inequality $-5 \leq 1 - 3x \leq 4$?



83. If 1 sind = 0.75 plunks, how many sinds are equivalent to 8 plunks, rounded to the nearest hundredth?

- A. 1.33
- B. 6.00
- C. 7.25
- D. 10.67

84. Simplify:

$$8x - (7 + 2.5x) + 2$$

- E. $5.5x - 9$
- F. $5.5x - 5$
- G. $10.5x - 9$
- H. $10.5x - 5$

85. Kim can repair 3 bicycles every 4 hours. At this rate, how long will it take her to repair 5 bicycles?

- A. 6 hr
- B. 6 hr 40 min
- C. 6 hr 45 min
- D. 7 hr 15 min

86. Jar Q contains 12 balls, and Jar R contains 8 balls. The probability of drawing a yellow ball at random from Jar Q is $\frac{1}{3}$. The probability of drawing a yellow ball at random from Jar R is $\frac{3}{4}$. All the balls are poured into an empty jar, Jar S. What is the probability of drawing a yellow ball at random from Jar S?

- E. $\frac{1}{4}$
- F. $\frac{1}{3}$
- G. $\frac{1}{2}$
- H. $\frac{4}{7}$

87.

GIA'S BAG OF SNACK MIX

Snack	Number in Bag
Pretzels	12
Raisins	9

Gia and her friends counted the numbers of pretzels and raisins in their bags of snack mix. The table above shows the numbers in Gia's bag. Which other snack mix bag has a ratio of pretzels to raisins in the same proportional relationship as Gia's bag?

A. ADELE'S BAG OF SNACK MIX

Snack	Number in Bag
Pretzels	6
Raisins	18

B. CARL'S BAG OF SNACK MIX

Snack	Number in Bag
Pretzels	15
Raisins	12

C. ISABEL'S BAG OF SNACK MIX

Snack	Number in Bag
Pretzels	18
Raisins	15

D. TREVON'S BAG OF SNACK MIX

Snack	Number in Bag
Pretzels	16
Raisins	12

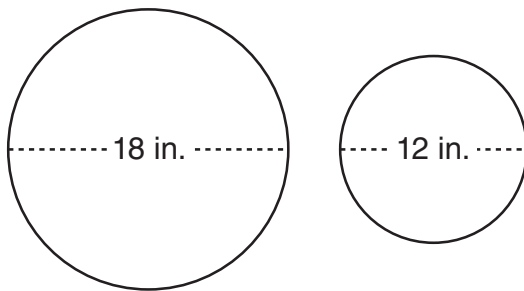
88. If $y = 4x$, what is the value of $3y + 2(3y + 5) - x$ in terms of x ?

- E.** $8x + 10$
- F.** $32x + 10$
- G.** $35x + 10$
- H.** $36x + 10$

90. If $x = -4$, what is the sum of x and 10% of $|x|$?

- E.** -4.4
- F.** -3.6
- G.** 0.4
- H.** 4.4

89. Two circular plates have the dimensions shown.



What is the difference between the areas of the two plates, in square inches?

- A.** 6π
- B.** 9π
- C.** 45π
- D.** 180π

91. The volume of a cube is 512 cubic centimeters. What is the length, in centimeters, of **one** side of this cube?

- A.** 8
- B.** $42\frac{2}{3}$
- C.** $85\frac{1}{3}$
- D.** 128

92. The high temperature on Monday was x° F. On Tuesday, the high temperature was 84° F, which was a 5% increase from Monday's high temperature. On Wednesday, the high temperature was 10% lower than it was on Monday. How much lower was the high temperature on Wednesday than the high temperature on Monday?

- E.** 4.0° F
- F.** 8.0° F
- G.** 8.4° F
- H.** 8.8° F

93. The integers $(n - 1)$, n , and $(n + 1)$ are factors of 168. What is the **greatest** possible value of n ?

- A.** 3
- B.** 7
- C.** 14
- D.** 84

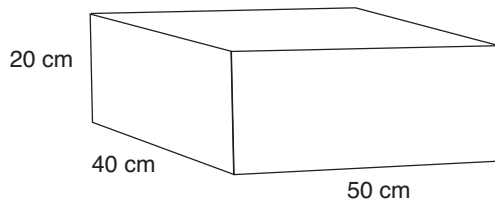
94. Raoul gave two musical performances. His second performance occurred 86 days after his first performance. If Raoul's second performance was on a Tuesday, on what day of the week was his first performance?

- E.** Sunday
- F.** Monday
- G.** Wednesday
- H.** Thursday

95. Michael received a check for \$213 for working 20 hours at his part-time job. The amount on the check was his total pay after \$32 in taxes was deducted. What was Michael's hourly pay rate before taxes were deducted?

- A.** \$9.05
- B.** \$10.65
- C.** \$12.25
- D.** \$21.35

96.



What is the total surface area, in square centimeters, of the closed box shown above?

- E. 3,800
- F. 5,600
- G. 7,600
- H. 40,000

97. The value of a particular car decreases at a constant rate. If the car is worth \$15,000 three years after its original purchase date and \$10,000 five years after its original purchase date, what was the value of the car on its original purchase date?

- A. \$18,000
- B. \$20,000
- C. \$22,500
- D. \$25,000

98. A bag contains 2 green, 4 blue, and 3 yellow disks. Alana selects 4 disks from the bag at random, one at a time, without replacing them. What is the probability that she selects all 4 blue disks?

- E. $\frac{8}{2,187}$
- F. $\frac{1}{126}$
- G. $\frac{256}{6,561}$
- H. $\frac{16}{9}$

99. Jevon earns $\frac{1}{2}\%$ per year on the money in his savings account. Which expression is **not** another way to write $\frac{1}{2}\%$?

- A. $\frac{0.005}{100}$
- B. $\frac{1}{2}$
 $\frac{100}{100}$
- C. $\frac{5}{1,000}$
- D. $\frac{1}{200}$

100. A community garden had 50 members in 2001. In each of the next three years, the number of members increased by 40% over the number of members from the previous year. How many members were there in 2004? (Round to the nearest whole number.)

- E.** 70
- F.** 98
- G.** 110
- H.** 137

101. Which inequality is equivalent to $6x - 20 < 5x - 2(5 - 3x)$?

- A.** $x < 16$
- B.** $x < \frac{5}{2}$
- C.** $x < -2$
- D.** $x > -2$

102. A box contains a total of 30 paper clips with colors in the ratio red:white:blue = 2:5:3. Suppose that one paper clip of each color is removed from the box and not replaced. What is the probability that the next paper clip chosen will be blue?

- E.** $\frac{5}{27}$
- F.** $\frac{2}{7}$
- G.** $\frac{8}{27}$
- H.** $\frac{3}{10}$

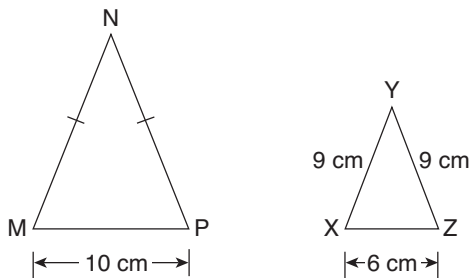
103. The least positive integer evenly divisible by the first 6 positive integers is 60. What is the least positive integer evenly divisible by the first 8 positive integers?

- A.** 1,680
- B.** 840
- C.** 480
- D.** 420

104. Three different colors of paint are available to paint the window frame, the door, and the wall of a house. If no two parts of the house may be painted the same color, how many different ways are there to paint the three parts of the house?

- E.** 3
- F.** 6
- G.** 9
- H.** 27

105.



Triangle MNP is similar to triangle XYZ, and $MN = NP$. What is the perimeter of triangle MNP?

- A.** 25 cm
- B.** 30 cm
- C.** 36 cm
- D.** 40 cm

106. Suppose that w , x , y , and z are integers, none of which are zero. Under which set of conditions would the product $x^2yz^3|w|$ **always** be positive?

- E.** x is positive and w is positive.
- F.** x is negative and w is negative.
- G.** y is negative and z is negative.
- H.** x and y are negative, and z and w are positive.

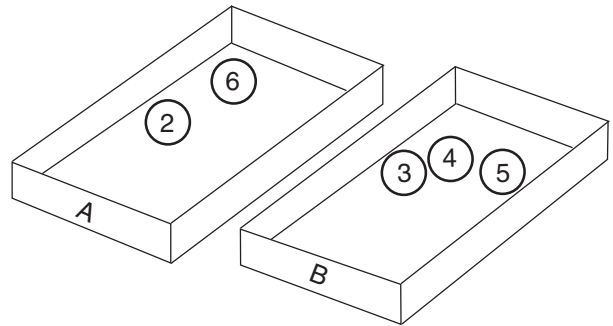
107. Chris has 1 red shirt, 2 white shirts, and 3 black shirts. Chris picks a shirt at random. Without putting the first shirt back, he picks a second shirt at random. What is the probability that the first shirt is black and the second shirt is red?

- A.** $\frac{1}{12}$
- B.** $\frac{1}{10}$
- C.** $\frac{1}{5}$
- D.** $\frac{7}{10}$

108. Rita used 125 small solid cubes to build a large solid cube. The measure of each edge of the small cubes equals 1 inch. What is the measure of each edge of the large cube, in inches?

- E.** 5
- F.** 25
- G.** 41.33
- H.** 125

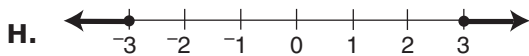
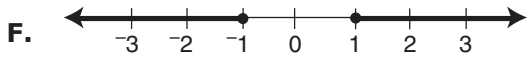
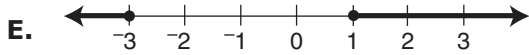
109.



Five numbered balls are placed in two boxes as shown in the figure above. Davina picks one ball at random from Box B and places it in Box A. Then Yusuf picks one ball from Box A without looking. What is the probability that Yusuf will pick a ball with an odd number?

- A.** $\frac{2}{9}$
- B.** $\frac{1}{3}$
- C.** $\frac{2}{5}$
- D.** $\frac{2}{3}$

110. Which graph represents the solution to $|x + 1| \geq 2$?



111. A rectangular kitchen floor is 12 feet long and 7.5 feet wide. It will be covered completely with new square tiles measuring 0.75 foot on each side. How many tiles will cover the floor?

- A.** 68
- B.** 78
- C.** 120
- D.** 160

112. Typically, an amusement park sells 3 times as many tickets on Sunday as on any weekday, and 4 times as many tickets on Saturday as on Sunday. If the number of tickets sold on Saturday and Sunday totaled 30,000, how many tickets are expected to be sold on the following Monday?

- E.** 2,000
- F.** 2,500
- G.** 3,000
- H.** 4,285

113. A rectangular field had a length of 80 meters and a width of 50 meters. The field was recently enlarged, with the length increased by 15% and the width increased by 10 meters. By what percentage was the area of the field increased?

- A. 26.5%
- B. 35%
- C. 38%
- D. 42.5%

114. If x and y are both negative integers with $x < y$, which expression has the **least** value?

- E. x^2y
- F. xy^2
- G. $-x^2y$
- H. $-xy^2$

THIS IS THE END OF THE TEST.
IF TIME REMAINS, YOU SHOULD CHECK
YOUR ANSWERS. BE SURE THAT THERE
ARE NO STRAY MARKS, PARTIALLY
FILLED ANSWER CIRCLES, OR
INCOMPLETE ERASURES ON YOUR
ANSWER SHEET. ■

REVISING/EDITING PART A

1. The question asks for the revision that corrects the error in sentence structure in the paragraph.
 - A. **CORRECT.** The first sentence of the paragraph is a run-on because both clauses—"The land on Earth has not always been separated into the seven continents" and "at one time a massive supercontinent, known as Pangaea, covered one-third of Earth's surface"—are independent clauses. Independent clauses are complete sentences, and two complete sentences should not be combined with just a comma. The revision is correct because it separates the two sentences by placing a period where it is needed after "continents" and by capitalizing the word "At."
 - B. Incorrect. While adding a semicolon after "surface" can be considered a correct way to separate the independent clauses "at one time a massive supercontinent, known as Pangaea, covered one-third of Earth's surface" and "Additionally, the supercontinent was surrounded by ocean waters called Panthalassa, much of which were in Earth's Southern Hemisphere," this change does not address the sentence structure error in the paragraph (the run-on sentence). The use of a period separating the independent clauses (complete sentences) is correct as is.
 - C. Incorrect. Adding a period after "Panthalassa" would separate the dependent clause "much of which were in Earth's Southern Hemisphere" from its subject: "ocean waters called Panthalassa." The dependent clause cannot stand on its own because it shares elements with the main clause. A dependent clause is not a complete sentence and must be joined with an independent clause. The clause beginning with "much of which" is an adjective for "ocean waters." Changing the comma to a period creates a new error (a sentence fragment) and does not address the existing sentence structure error at the beginning of the paragraph (the run-on sentence).
 - D. Incorrect. Removing the period after "crust" would create a run-on sentence because the period is needed to separate two complete sentences—"Geologists believe that the supercontinent split apart over millions of years because of the movement of the tectonic plates that form Earth's crust" and "In fact, experts predict that over the next 250 million years the movement of the plates will cause the seven continents to merge into a supercontinent again." A comma after "crust" would combine these sentences into a run-on, creating a new error in the sentence without fixing the existing sentence structure error (the run-on sentence) at the beginning of the paragraph.

2. The question asks for the identification of the sentence in the paragraph that has an error in its construction and should be revised.

- E. **CORRECT.** Sentence 1 contains a structural error. The sentence begins with a list of modifying phrases: "Walking dogs, cleaning kennels, hand-feeding newborn kittens, and supporting the pet-adoption process." As written, this list modifies the closest noun phrase, "the animal shelter," which is illogical because the list describes tasks at the animal shelter, not the shelter itself. The list should follow the word "tasks" at the end of the sentence, so that it is closer to the word that it modifies.
 - F. Incorrect. Sentence 2 does not contain structural errors. The phrase "especially those who aspire to care for and protect animals" in sentence 2 correctly modifies "young people."
 - G. Incorrect. Sentence 3 does not contain structural errors. The structure of sentence 3 allows the words "In addition to hands-on training with animal care" to correctly modify "volunteers will learn."
 - H. Incorrect. Sentence 4 does not contain structural errors. The phrase "which is the awareness and understanding of the feelings of others" in sentence 4 correctly modifies the word "empathy."
-

3. The question asks for the correction needed for an error in the sentence.

- A. Incorrect. When a name has more than one element, a comma is used to separate the elements for clarity.
 - B. **CORRECT.** The sentence needs a comma to set off the clause "which is considered one of the 'new' Seven Wonders of the World," because the clause is not essential to the meaning of the sentence (nonrestrictive clause). This option is correct because it places a comma where it is needed, after "Italy," to set off the nonrestrictive clause that follows.
 - C. Incorrect. This edit would remove the comma at the end of the nonrestrictive clause, which should be set off by commas at the beginning and the end.
 - D. Incorrect. A comma after "built" would separate the dependent clause "and once could hold up to 50,000 spectators" from the subject of the main clause. The dependent clause uses the subject from the main clause, so it must stay connected.
-

4. The question asks for the correct revision of the sentence in the box.

- E. Incorrect. The revisions do not fix the error that "to promote their club" modifies "a bake sale."
- F. Incorrect. The revisions do not fix the error that "to promote their club" modifies "a bake sale."
- G. **CORRECT.** The revision is correct because it includes the phrase "to promote their club" clearly modifying "members of the debate team."
- H. Incorrect. While the revision clarifies that "to promote their club" relates to the "members of the debate team," the rest of the sentence is poorly written because the insertion of "on Wednesday to promote their club" in the middle of the sentence interrupts the main clause, "Members of the debate team will sponsor a bake sale."

REVISING/EDITING PART B

The Free College Debate

5. The question asks which sentence should replace sentence 3 to best state the topic of the passage.
- A. Incorrect. Although this sentence mentions that “several states have implemented scholarship programs,” it does not clearly introduce the topic of the passage, which is differing opinions about and approaches to solving the problem of the cost of college.
 - B. **CORRECT.** This sentence best replaces sentence 3 because it clearly states the topic of “determining the most effective way to make college affordable.” It also provides an introduction to the “differing opinions” of proponents, who believe that states should provide low-cost or free tuition, and opponents, who believe that such state programs are “unsustainable” (sentence 8).
 - C. Incorrect. This sentence mentions the role of higher-education institutions in helping “reduce the cost of a college education” for students, which is a idea discussed in sentences 14 and 15 in the passage. Although the sentence provides details to support the topic of the passage by referring to “ways to help students avoid paying for unnecessary classes and materials,” it does not state the topic, which is differing opinions about and approaches to solving the problem of the cost of college.
 - D. Incorrect. Even though this sentence mentions “college affordability,” it is primarily focused on a problem that is related to, but different from, the issue discussed in the passage. The passage is concerned with “the price of higher education” (sentence 2), not how tuition rates “affect the quality of the education [students] receive.”
-
6. The question asks where the sentence should be added to best support the ideas in the second paragraph (sentences 4–7).
- E. Incorrect. Sentence 4 introduces the main idea of the second paragraph (making college “a financially realistic option for those who aspire to obtain a degree”) and should not be preceded by the added sentence, which focuses more narrowly on the specific ways that some states are implementing that idea.
 - F. **CORRECT.** The added sentence provides a proposed solution to the issue stated in sentence 4, that “a college education should be a financially realistic option.” Sentence 5 is an example of the programs discussed in the added sentence.
 - G. Incorrect. Sentences 5 and 6 offer examples of state governments providing “low-cost or free” tuition. The added sentence introduces this idea in the second paragraph and should come before these specific examples are provided as evidence.
 - H. Incorrect. Sentence 6 provides an example of the state government of Tennessee providing “low-cost or free” tuition, and sentence 7 further explains the opinion of those in favor of such programs (“a step in the right direction for making college affordable”). However, the ideas in sentences 6 and 7 follow from and support the idea in the added sentence. Therefore, the added sentence should be placed in the paragraph before sentences 6 and 7, which help elaborate its idea.

7. The question asks which sentence presents information that shifts away from the topic of the third paragraph (sentences 8–13) and should be deleted.
- A. Incorrect. Sentence 9 explains that scholarship funding comes “from the state’s budget, which primarily comes from state taxes.” Sentence 10 logically follows the idea in sentence 9 by explaining that “as more students choose to attend college, more funds will be needed to cover the costs.” Therefore, sentence 10 should not be deleted, because it does not shift away from the topic of the paragraph.
 - B. **CORRECT.** Sentence 10 makes the claim that “as more students choose to attend college, more funds will be needed to cover the costs.” Sentence 11 shifts away from this topic by focusing on how switching majors or working affects students’ ability to finish college, rather than on the additional funds that will be needed for scholarship programs. Therefore, sentence 11 should be deleted.
 - C. Incorrect. Sentence 9 states that scholarship program funding comes “from the state’s budget, which primarily comes from state taxes.” Sentence 10 points out that “as more students choose to attend college, more funds will be needed to cover the costs.” Sentence 12 elaborates on the critics’ opinions discussed in sentences 8–10. It reflects the belief that the “circumstances” described in sentences 9 and 10 “will inevitably lead to an increase in taxes, a decline in the quality of the education offered by the schools, or both.” Thus, sentence 12 should not be deleted, because it does not shift away from the topic of the paragraph.
 - D. Incorrect. Sentence 13 refers back to the “critics” mentioned in sentence 12 and expands on the critics’ concern about increased taxes mentioned in sentence 12 by stating that “narrower college-affordability efforts . . . may be more effective and viable solutions.” Therefore, sentence 13 should not be deleted because it logically follows the ideas in sentence 12 and serves as a concluding sentence for the paragraph.

8. The question asks which phrase should be added before sentence 14 to best transition to the ideas in the fourth paragraph (sentences 14–17).
- E.** Incorrect. Sentence 13 summarizes the viewpoint of opponents, who believe that targeted approaches to funding education “may be more effective and viable solutions,” and sentence 14 serves to introduce how “faculty and students at higher-education institutions can work to keep costs down.” Affordability is “a complicated issue,” but the use of the word “Because” suggests that the ideas that follow in sentences 14–17 will explain a cause-and-effect relationship. However, sentences 14–17 discuss ways faculty and students should work together to keep the cost of college down while waiting for a long-term solution to the problem, not a causal relationship.
- F.** Incorrect. Sentences 4–13 provide information about the viewpoint of proponents, who believe that “a college education should be a financially realistic option for those who aspire to obtain a degree” (sentence 4), and opponents, who believe free college programs are “unsustainable” (sentence 8). Although the phrase in this option mentions “opinions,” it indicates that the fourth paragraph will discuss why the number of opinions makes affordability a debatable issue. Instead, the fourth paragraph discusses ways faculty and students can help keep costs down until a solution is reached.
- G. CORRECT.** Sentence 13 summarizes the viewpoint of opponents, who believe that targeted approaches to funding education “may be more effective and viable solutions,” while proponents “generally believe that these [government] programs are a step in the right direction for making college affordable” (sentence 7). However, sentences 14–17 offer three possible solutions that could alleviate the problem in the meantime. Therefore, the phrase in this option should be added before sentence 14 to best transition to the ideas in the fourth paragraph because it suggests that until the issue of affordability is resolved, alternatives are available to help make a college education more affordable.
- H.** Incorrect. This phrase mentions “college affordability,” a topic discussed in the fourth paragraph. However, the ideas introduced in the phrase do not logically lead into the ideas discussed in sentences 14–17, because the phrase mentions “programs [that] have been successful,” and the paragraph states that “faculty and students at higher-education institutions can work to keep costs down” (sentence 14) and that colleges “should account for experience by allowing students to demonstrate their knowledge in order to avoid having to pay to sit through classes on subjects they have already mastered” (sentence 16). Use of the words “can” and “should” in these sentences indicates that the actions or programs mentioned in the paragraph have not been completed.

9. The question asks which concluding sentence should be added after sentence 19 to support the topic of the passage.
- A. Incorrect. Although sentence 15 cites "increased access to computers, mobile devices, and the Internet" and states that "there are more opportunities for students to take courses online, thus reducing the need for and cost of maintaining physical classrooms," the primary topic discussed throughout the passage is that state and federal governments, not faculty and students, must resolve the issue of college affordability. Therefore, the sentence should not be added after sentence 19, because it does not support the topic.
 - B. Incorrect. Sentence 5 presents the example of the New York State legislature, which "passed a bill creating a program to cover the tuition costs for nearly one million students." Sentence 12 states that critics of this type of program believe that certain circumstances "will inevitably lead to an increase in taxes" or other issues such as low-quality education. However, the idea that these types of programs may lead to new problems is not thoroughly discussed in the passage. Therefore, the sentence should not be added after sentence 19, because it does not support the topic.
 - C. Incorrect. Although sentence 7 states that scholarship programs are helpful "for students who would have had to take out loans or who would have decided not to pursue higher education at all," the passage does not state that many students will stop pursuing higher education until the affordability issues are solved. In fact, sentence 14 states that there are ways faculty and students can "work to keep costs down." Therefore, the sentence should not be added after sentence 19, because it does not support the topic.
 - D. **CORRECT.** The sentence in this option should be added after sentence 19 to support the topic because it acknowledges that the issue of college affordability discussed throughout the passage is not "resolved" but that when it is, students will be able to make decisions about attending college without concerns about cost. Sentence 18 states that "the solutions to the problems associated with rising college costs are not simple," and sentence 19 adds that "passing legislation that boosts college affordability will take time," ideas, and planning.

READING COMPREHENSION

Massachusetts: Lowell National Historical Park

- 10.** The question asks why the author includes the quotation from the Scottish traveler in paragraph 1 of the passage.
- E.** Incorrect. While it is likely that people outside the United States recognized that both the natural landscape and the bustling industry were significant, the quotation from the Scottish traveler is meant to convey the variety of the types of attractions in the U.S., not to make a general statement about their contribution.
 - F.** Incorrect. The Scottish traveler mentions both “American scenery” and “American industry” in the quotation, but the intent is to highlight that they are each points of interest. The quotation does not provide a comparison of the two attractions.
 - G. CORRECT.** The quotation emphasizes the idea that the United States offers different attractions. The Scottish traveler highlights the two places in the United States that he will most remember: first, the beautiful natural formation of Niagara Falls (“the glory of Americanscenery’”) and second, the industrial city of Lowell (“the glory . . . of American industry’”).
 - H.** Incorrect. The Scottish traveler mentions both “American scenery” and “American industry” in the quotation but does not imply that the natural resources contributed to the development of industry.
-
- 11.** The question asks for the sentence in paragraph 2 that best supports the idea that Lowell became “a bustling industrial city” (paragraph 1).
- A.** Incorrect. While the sentence provides details on when the town of Lowell was founded and the natural features of the area, it does not support the idea that the city became “a bustling industrial city.”
 - B.** Incorrect. Although this sentence indicates that the mill buildings were a noticeable feature of the city and provides details on how the mills worked, it does not specifically show that Lowell had become “a bustling industrial city.”
 - C.** Incorrect. While this sentence lists some recognizable mill buildings along the river and notes when their associated businesses were established, it does not support the idea that Lowell was “a bustling industrial city.”
 - D. CORRECT.** This sentence indicates that within only a few decades of the city’s founding, it experienced massive industrial growth, with “40 textile mills employing over 10,000 workers,” supporting the idea that Lowell became “a bustling industrial city.”

- 12.** The question asks which statement best describes how the sentence in paragraph 3 fits into the overall structure of the passage.
- E. CORRECT.** The sentence in paragraph 3 provides a transition from the overall description of the city and the mills to a description of the women who made up the workforce in the mills. The idea that women left domestic life in favor of working in the mills is important in the passage, and the sentence serves to connect that idea to the previous discussion about the mills.
 - F.** Incorrect. While the mill girls' dissatisfaction with their working conditions is addressed later in the passage ("These wage cuts, deteriorating working conditions, and long workdays led the 'mill girls' to protest and organize strikes" [paragraph 4]), the sentence in paragraph 3 does not indicate a shift in tone from positive to negative. The sentence provides a transition to the discussion of the women who worked in the mills.
 - G.** Incorrect. Although the sentence in paragraph 3 mentions that women became interested in working in the mills because of the "constricted lifestyle of small rural towns," structurally the sentence does not function as a summary because, instead of expanding on the idea of the difficulties or challenges of life in small rural towns and rural areas, the paragraph goes on to describe the advantages and disadvantages of life in the city for these women.
 - H.** Incorrect. The sentence in paragraph 3 focuses on the choices women made to leave rural towns to work in the city in the early to mid-1800s, not the mid-1800s to the late 1800s. The sentence does not create a comparison between the workforce in the mid-1800s and that in the late 1800s.
-

- 13.** The question asks how the sentence in paragraph 5 contributes to the development of ideas in the passage.
- A.** Incorrect. The sentence from paragraph 5 does not imply that Lowell was founded by early Irish immigrants. The sentence explains how Irish immigrants had been settling in Lowell since the city was established and that they contributed to the construction of the city, which allowed it to become an industrial center several decades later.
 - B. CORRECT.** The sentence from paragraph 5 shows that early Irish immigrants were critical to the success of Lowell as an industrial city. This information supports the development of the idea that the work of Irish immigrants and immigrants from other places is an important element in the historical significance of industry in Lowell.
 - C.** Incorrect. The sentence from paragraph 5 does not suggest that new Irish immigrants were readily accepted into the community. Paragraph 5 states that "initially, Lowell's Protestant community was slow to welcome Irish immigrants, but the hostility between Yankee Protestants and Irish Catholics eventually disappeared."
 - D.** Incorrect. The sentence from paragraph 5 does not highlight the relationship between the mill girls and the new Irish immigrants. Paragraph 4 explains how the mill girls left Lowell, and paragraph 5 states that the mill girls were replaced by "predominantly Irish Catholics, who traveled to America during the Great Potato Famine" but does not discuss a relationship between them.

- 14.** The question asks for the sentence that best summarizes the mill girls' time as the dominant workforce in Lowell.
- E.** Incorrect. While the passage explains that mill girls were initially eager to leave the domestic duties of life in rural areas, the summary sentence does not address the details about the mill girls' time working in the mills or the changes that led the mill girls to leave the industry.
 - F.** Incorrect. Mill girls initially found satisfaction in the mill work and lifestyle, and when they did leave, immigrants filled the empty jobs. This summary sentence, however, does not address the details about the mill girls' time as the primary workforce in Lowell or the circumstances that led them to leave their jobs in the mid-1800s.
 - G.** Incorrect. Mill girls did leave home to work in the Lowell mills, and they did grow dissatisfied over time, but this summary sentence does not include details about the mill girls' actions to improve the working conditions.
 - H. CORRECT.** This sentence summary best captures the mill girls' experience as outlined in paragraphs 3 and 4. The sentence concisely summarizes both the women's initial excitement about the opportunity to live independently ("Women found that Lowell's mills offered monthly wages for their services and provided them room and board" [paragraph 3]) and their eventual inability to secure better working conditions ("When their demands went unheard, the women left Lowell, and immigrant groups replaced them in the workforce" [paragraph 4]).
-
- 15.** The question asks which description conveys the central idea that Lowell was "one of America's most significant industrial cities" (paragraph 1).
- A.** Incorrect. While the passage does state that the city's canals, mills, and boardinghouses were built by early immigrants from Ireland, these details do not contribute to the development of the overall idea that Lowell was a significant industrial city.
 - B.** Incorrect. The details about the women and immigrants who worked in the mills is important to the passage, but these details alone do not show that Lowell was a significant industrial city.
 - C. CORRECT.** The details throughout the passage about the development of the mills and the people who worked in them convey the significance of Lowell in early American industry. Paragraph 2 shares details about the businesses that started in the early 1800s and contributed to the development of industry in the region ("The most recognized of these buildings are the Lowell Manufacturing Company chartered in 1821, the Suffolk or Wannalancit Mill completed around the 1880s, the Boott Mill Company established in 1835, and the Boott Mill Boardinghouse that opened in 1838"). Then paragraphs 3–6 provide specific details about the people who worked in the mills at different points in time.
 - D.** Incorrect. Although the passage references Lowell's culturally diverse community ("Young Yankee women, immigrant families, and European tourists all flocked to Lowell to find work at one of the many textile mills" [paragraph 1]), these groups alone are not what marked Lowell as a significant industrial city.

- 16.** The question asks for the reason that best illustrates why Lowell lost its status as an industrial leader.
- E.** Incorrect. While the passage discusses the “long work hours, low wages, and poor living conditions in the city’s crowded tenements” (paragraph 6) in Lowell, these details highlight the living and working conditions of immigrant groups. The author does not state that poor living and working conditions are the reason Lowell lost its status as a “model of industry.”
 - F.** Incorrect. Paragraph 5 in the passage acknowledges that there was some tension between the different ethnic and religious groups in Lowell, but this idea is not what led to Lowell’s decline as a “model of industry.”
 - G. CORRECT.** When Lowell was initially established, the mills in the city thrived because of their advanced manufacturing methods (“gaining global recognition for its state-of-the-art technology, innovative canal and dam system, [and] mill architecture” [paragraph 1]). However, manufacturing technology changed and improved over time, and many mill owners chose to close the mills rather than modernize them, resulting in Lowell’s loss of status as a “model of industry” (“The city officially began to close down its mills in the 1920s and ’30s after Lowell’s outdated mills could no longer compete against the state-of-the-art cotton mills in other communities” [paragraph 6]).
 - H.** Incorrect. The details about the temporary revival of the mills during World War II do not show why Lowell is no longer considered a “model of industry.” The mills were used briefly during wartime because of an increased need for supplies, but this use of the mills was short-lived.
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Excerpt from *A Tramp Abroad*

- 17.** The question asks what the inclusion of the phrase from paragraph 1, which highlights the behavior of ants from different parts of the world, shows about the author.
- A.** Incorrect. In the excerpt, the author is comparing different species of ants with one another and not with other living creatures.
 - B. CORRECT.** The phrase from paragraph 1 is meant to acknowledge that while the author believes that “the ordinary ant” is foolish, his observations in the excerpt do not apply to other types of ants.
 - C.** Incorrect. Although the author suggests that disproving a commonly held belief about the behavior of ants from different parts of the world is challenging, the author does not directly express this opinion in the excerpt.
 - D.** Incorrect. While the author suggests in the excerpt the idea that his conclusions drawn about the ants’ behavior are flawed, the reference to Swiss and African ants is meant to show that those ants are an exception.

- 18.** The question asks for an explanation of how the words “grabs,” “yanks,” and “tearing away” (paragraph 2) contribute to the meaning of the excerpt.
- E.** Incorrect. Although the ant’s actions suggest that he believes he has an important job to complete, the words used in the paragraph focus on the ant’s movements rather than on his beliefs.
 - F.** Incorrect. The ant’s inability to make progress while transporting the grasshopper leg by himself demonstrates the ant’s inefficiency (“At the end of half an hour he fetches up within six inches of the place he started from” [paragraph 2]).
 - G.** Incorrect. The ant does not complete his tasks, despite moving in a hurried and determined way (“not calmly and wisely, but with a frantic haste which is wasteful of his strength” [paragraph 2]).
 - H. CORRECT.** These words convey sudden movements as the ant becomes more upset in his efforts to transport the grasshopper leg.
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- 19.** The question asks how the sentence, which states that the ant ends up only six inches from his original starting point, contributes to the central idea of the excerpt.
- A.** Incorrect. While the author recognizes the pointlessness of the efforts, the ant never becomes aware that his efforts are purposeless.
 - B. CORRECT.** The sentence explains how the idea in the sentence supports the central idea that “the average ant is a sham” (paragraph 1) by emphasizing his lack of progress and wasted effort.
 - C.** Incorrect. The ant ending up only six inches from his starting point suggests pointless effort, not an industrious or productive attitude.
 - D.** Incorrect. The emphasis of the sentence is on the ant’s wasted effort, not the difficulty and time involved, which the ant never realizes or evaluates.

- 20.** The question asks which idea the description at the end of paragraph 2 conveys about the repetition of the ant’s actions.
- E.** Incorrect. The description at the end of paragraph 2, in which the ant “goes through the same adventures” to no avail, does not convey the idea that mistakes are necessary in order to make progress.
 - F.** Incorrect. The description at the end of paragraph 2, in which the ant runs away in a “violent” hurry and “traverses a good deal of zig-zag country, and by and by stumbles on his same booty again . . . not remember[ing] to have ever seen it before,” does not convey the idea that rushing to meet a goal may lead to an undesirable outcome, because the last line in paragraph 2 refers to the ant’s repetitive actions as an adventure (“He goes through the same adventures he had before”).
 - G.** Incorrect. The description at the end of paragraph 2, in which the ant repeatedly “stumbles on his same booty again,” does not convey the idea that breaking out of a familiar pattern of events is difficult, because the industrious ant “does not remember” (paragraph 2) and is thus unaware that he is repeating his actions.
 - H. CORRECT.** The description at the end of paragraph 2 says that the ant “traverses a good deal of zig-zag country, and by and by stumbles on his same booty again. He does not remember to have ever seen it before; he looks around to see which is not the way home, grabs his bundle, and starts. He goes through the same adventures he had before,” thus indicating that the ant is both industrious and foolish in his actions.
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- 21.** The question asks for a sentence from the excerpt that best supports the idea that the ant’s “leather-headedness” (paragraph 2), or the ant’s stubborn determination to engage in foolish and worthless actions, amounts to “ignorance” and “idiocy” (paragraph 4).
- A.** Incorrect. Although this sentence asks about what the ant does after “he makes a capture” (paragraph 2), this rhetorical question remains unanswered and the sentence does not best demonstrate how the ant’s stubborn determination in engaging in foolish and worthless actions amounts to “ignorance” and “idiocy.”
 - B.** Incorrect. While this sentence indicates what the ant does after “he makes a capture” (paragraph 2), the sentence does not best demonstrate how the ant’s stubborn determination in engaging in foolish and worthless actions amounts to “ignorance” and “idiocy,” because it describes typical ant behavior, in which there is nothing inherently foolish until it is applied stubbornly in the wrong direction (“he lifts it bodily up . . . and starts—not toward home, but in the opposite direction; not calmly and wisely, but with a frantic haste which is wasteful of his strength” [paragraph 2]).
 - C. CORRECT.** In the sentence, the ant realizes he is in the wrong place only after wasting effort and strength. “He cannot stroll around a stump and find his way home again. This amounts to idiocy” (paragraph 4). Thus, this sentence best demonstrates how the ant’s stubborn determination in engaging in foolish and worthless actions amounts to “ignorance” and “idiocy.”
 - D.** Incorrect. Even though this sentence uses the word “aimlessly” to suggest an element of foolishness, the sentence describes the physical aftermath of the ant’s exertions, but without the context of those exertions, it cannot be said to show “leather-headedness” or “ignorance” and “idiocy.”

- 22.** The question asks how the second ant, a friend, influences the first ant.
- E.** Incorrect. The first ant does not know where his home is (paragraph 2: "He doesn't know where home is. His home may be only three feet away; no matter, he can't find it").
 - F.** Incorrect. While the friend offers to help the first ant (paragraph 3: "Evidently the friend contracts to help him freight [the grasshopper leg] home"), he does not inspire a new approach to resolving the situation.
 - G. CORRECT.** The friend's complimentary remark about the grasshopper leg serves to encourage the first ant to continue his efforts to drag the useless object home (paragraph 3: "Evidently the friend remarks that a last year's grasshopper leg is a very noble acquisition").
 - H.** Incorrect. While the friend does make it difficult for the first ant to transport the grasshopper leg, the friend is not intentionally trying to prevent the first ant from reaching home (paragraph 3: "Then, with a judgment peculiarly antic [pun not intentional], they take hold of opposite ends of that grasshopper leg and begin to tug with all their might in opposite directions").
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- 23.** The question asks for the text from the excerpt that best explains why the author finds the behavior of the ants fascinating.
- A.** Incorrect. The quoted text provides details that reflect the author's basic interest, but this observation does not extend to the level of fascination.
 - B.** Incorrect. Although the author states "I admit his industry" and acknowledges that ants are hardworking, the author does not explain in the quoted text why he finds the behavior of the ants fascinating.
 - C.** Incorrect. The quoted text provides details that would reflect a basic interest and observation but that do not extend to fascination.
 - D. CORRECT.** The author's purpose in describing the excessively foolish actions of the ants is to prove his argument that in spite of what people have long believed, ants are completely lacking in intelligence. The author's use of the phrase "beyond comprehension" in the quoted text shows the author's fascination with the difference between public opinion and observed truth.

- 24.** The question asks for an explanation of how the sentence from paragraph 3, which highlights the second ant's interest in the grasshopper leg, fits into the structure of the excerpt.
- E.** Incorrect. The idea that the ant seeks out worthless items is established in paragraph 2 ("it is generally something which can be of no sort of use to himself or anybody else") and in paragraph 3 ("valueless enough to make an ant want to own it"), but the sentence does not indicate a shift to a realization that the ants place great importance on an item that has little value.
 - F. CORRECT.** This statement best describes how the sentence from paragraph 3 fits into the overall structure of the excerpt because the sentence emphasizes a shift from paragraph 2, which analyzes the actions of the first ant alone, to paragraph 3, which comments on the interaction between the two ants and the ensuing efforts of the two ants together as they "take hold of opposite ends of that grasshopper leg and begin to tug with all their might in opposite directions" (paragraph 3).
 - G.** Incorrect. While the author states in paragraph 3 that the ants "take hold of opposite ends of that grasshopper leg and begin to tug with all their might in opposite directions" and they "go to work again in the same old insane way," this statement does not best describe how the sentence from paragraph 3 fits into the overall structure of the excerpt, because the sentence does not create a transition to the idea that specific observations allow for a generalization about all ants.
 - H.** Incorrect. Although the author states in paragraph 3 that "the friend contracts to help him freight [the grasshopper leg] home," the author does not suggest that the ants' actions are purposeful. Rather, the author describes their actions and their "judgment [as] peculiarly antic" (paragraph 3). Thus, the statement does not best describe how the sentence from paragraph 3 fits into the overall structure of the excerpt, because the sentence does not provide a transition to the observation that the ant's friend is just as purposeful in his efforts toward a futile ending as the first ant is.
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- 25.** The question asks how the central idea that "the average ant is a sham" (paragraph 1) is mainly conveyed in the excerpt.
- A. CORRECT.** The excerpt focuses on the author's humorous explanation of the ineffective struggles of two ants to accomplish a task, and the excerpt concludes with the statement that ants are not as smart as people think: "the ant has been able to fool so many nations" (paragraph 4).
 - B.** Incorrect. The reference to ants in other locations is a detail mentioned only in paragraph 1 and is not directly related to the central idea mentioned in the question.
 - C.** Incorrect. While the narrator does observe the ants, the observations made are highly opinionated and not characterized as especially insightful or perceptive.
 - D.** Incorrect. Although paragraph 2 states that the ant seeks out objects that are "generally something which can be of no sort of use to himself or anybody else," this reference is not the main way that the author conveys the premise that ants are a sham or false.

Using Fire to Keep a Prairie Healthy

- 26.** The question asks how observing the effects of the fires started by natural causes prompted American Indians to begin practicing controlled burns.
- E. CORRECT.** In paragraph 2, the author states that American Indians observed bison “grazing on tender new grass on the recently burned land rather than on grass in the unburned areas.” These observations prompted the practice of controlled burns as a means of enticing “the herds away from the people’s crops.”
 - F.** Incorrect. Although the author mentions in paragraph 4 that the primary targets of a controlled burn are red cedar trees and that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them,” this detail supports why conservationists use controlled burns today, not what initially prompted the use of controlled burns.
 - G.** Incorrect. While the author states in paragraph 3 that “the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil” and that “intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there,” these details do not explain the initial observations that prompted American Indians to practice controlled burning.
 - H.** Incorrect. The author mentions in paragraph 2 that the bison “seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas” and that the availability of this new grass “enticed the herds away from the people’s crops.” While these details show that the use of controlled burns influenced the behavior of the bison, the author does not suggest that the bison changed their migration habits in order to flee wildfires.
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- 27.** The question asks how targeting red cedar trees in controlled burns affects the animals that live on the prairie.
- A. CORRECT.** According to information in paragraph 4, targeting invasive red cedar trees with controlled burns affects animals that live on the prairie by ensuring that these trees do not “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” The paragraph also states that each red cedar tree consumes “up to 40 gallons of water per day, taking this vital resource away from other plant life.” Removing red cedars thus increases the amount of water available to the prairie grasses and helps maintain favorable conditions for the animals’ main source of food.
 - B.** Incorrect. Although the author mentions the potential danger to wildlife from an uncontrolled burn in paragraph 5, the author emphasizes that patch burning “allows animals in the burn area to safely relocate.” Therefore, the animals that live near trees scheduled for removal are not endangered by the controlled burns.
 - C.** Incorrect. In paragraph 4, the author states that “a single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life.” However, the author does not suggest that reducing the number of red cedar trees through controlled burns ensures a sufficient water supply for animals that live on the prairie.
 - D.** Incorrect. In paragraph 4, the author states that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them.” However, the author does not suggest that using controlled burns to eliminate red cedar trees reduces a natural source of shade for prairie animals. The red cedar trees are invasive; therefore, the author does not consider them a “natural” part of the prairie ecosystem.

- 28.** The question asks what the author intends to show by using the second sentence in paragraph 6 in the passage.
- E.** Incorrect. Although the author refers to the conservationists as “experts” in paragraph 5 and states that conservationists “provide training to prairie farmers” (paragraph 6), the second sentence in paragraph 6 does not imply that the conservationists are better qualified to lead preservation efforts than farmers are. Instead, the sentence shows that conservationists believe that prairie farmers are capable of performing the controlled burns that contribute to overall conservation efforts.
 - F. CORRECT.** The conservationists are eager to involve others in the preservation of the prairie, because “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out” and that the process has “helped the prairie sustain life for hundreds of years” (paragraph 6). The second sentence in paragraph 6 describes how conservationists are sharing their knowledge about preservation techniques with people who live on the prairie.
 - G.** Incorrect. Although the author points out in paragraph 6 that “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the idea that controlled burns may help restore the original biodiversity of the prairie is not the focus of the second sentence in paragraph 6, which notes only that conservationists are providing training to farmers about controlled burns.
 - H.** Incorrect. The author mentions in paragraph 6 that the patch-burn system has been “successful” and suggests in the last sentence of the paragraph that the use of controlled burns will continue to benefit the prairie ecosystem. These details imply that this system will continue to be used and may even become more widespread. However, the second sentence in paragraph 6 merely describes a patch-burn training program that already exists and does not suggest that this program should serve as a model for other organizations.

29. The question asks which details from the passage best convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
- A. Incorrect. The author explains in paragraph 5 that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate.” This explanation conveys two supporting ideas: the patch-burn method is controllable, and patch-burn fires do not pose a threat to animals. However, this explanation does not address the broader central idea that the patch-burn method is an effective way to protect and manage prairie land.
 - B. Incorrect. In paragraph 5, the author states that “the key to using controlled fires is knowing which areas of land to burn and when.” The author then provides information about how conservation experts “study the land to find out which areas would most benefit from being burned.” However, these details convey supporting ideas rather than the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
 - C. **CORRECT.** In paragraph 3, the author states that “fires burn away weedy undergrowth and help limit the overcrowding of shrubs and trees in the burn area, creating less competition for water and nutrients.” Also, in paragraph 6, the author states that patch burning “has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out.” These details directly convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
 - D. Incorrect. The author explains in paragraph 5 how conservationists “arrange about a dozen burns over one-third of the land,” which helps show how the patch-burn method is applied by conservationists. However, this is a supporting detail that conveys the idea that the burns are deliberately set and carefully controlled. This detail does not convey the central idea that using the patch-burn method is an effective way to manage and protect prairie land.
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30. The question asks which sentence supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land.
- E. **CORRECT.** The sentence from paragraph 1 supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it acknowledges that “one of the greatest threats to the prairie is wildfire.”
 - F. Incorrect. Although the sentence from paragraph 2 relates how American Indians “began to deliberately burn areas of land for bison to graze on” and to protect people’s crops, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land. Instead, it focuses on the cause-and-effect relationship between bison and newly burned areas.
 - G. Incorrect. The sentence from paragraph 5 provides details about how “patch burning contains the fire” and “allows animals in the burn area to safely relocate,” but it does not adequately support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land, because it does not mention that wildfires can be a threat to the prairie.
 - H. Incorrect. While the sentence from paragraph 5 does explain how “conservationists will burn a different section of the preserve” in order to rotate the process year after year so that the burned land has time to regrow, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it does not mention the potential for total burns.

- 31.** The question asks which idea the words “counterintuitive” and “strategic” convey in the last sentence in paragraph 6 in the passage.
- A.** Incorrect. Though the author states in paragraph 6 that conservationists have used safe and “strategic” methods, those methods have not been ineffective, since “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land” (paragraph 6). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that the safest methods are sometimes the least effective at solving complex challenges.
 - B.** Incorrect. Although the author points out in paragraph 6 that researchers’ studies have shown “that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the author does not suggest that the methodologies conservationists used to conduct the patch burns are uncommon, since the methods were used by “the American Indian people [who] began to deliberately burn areas of land for bison to graze on” (paragraph 2). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that thorough investigation of uncommon methodologies can lead to beneficial results.
 - C. CORRECT.** In paragraph 1, the author states that “one of the greatest threats to the prairie is wildfire,” so the idea of conducting controlled burns suggests risk and runs “counter,” or contrary, to people’s common expectations, or “intuition,” about the dangers of fires. Thus, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 convey the idea that detailed planning can ensure that a potentially destructive action has a positive impact.
 - D.** Incorrect. The author states in paragraph 6 that “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers.” This statement supports the idea of the action being “strategic” in order to achieve success. However, the statement does not suggest that because the process is “counterintuitive,” or unexpected, it involves a certain amount of risk to achieve that success. Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that plans that entail a certain amount of risk almost always result in success.

- 32.** The question asks with which statement the author of the passage would most likely agree.
- E.** Incorrect. In paragraph 5, the author states that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate,” and paragraph 6 states that conservationists “provide [important] training to prairie farmers about conducting controlled burns on their own land.” However, the author does not explicitly take a position about the importance of explaining the purposes and the risks of controlled burns to the people living near a proposed burn area. Therefore, the evidence in the passage does not strongly suggest that the author would agree with this statement.
 - F. CORRECT.** In paragraph 5, the author points out that conservationists “study the land to find out which areas would most benefit from being burned, and then they arrange about a dozen burns over one-third of the land” and “rotate which portion of land is burned each year” so that animals, such as bison, can “safely relocate.” Therefore, the author would most likely agree that it is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
 - G.** Incorrect. The author of the passage would be unlikely to agree that monitoring animals’ reactions after a controlled burn on the prairie is a minor part of scientists’ research. In paragraph 5, the author explains that patch burning “allows animals in the burn area to safely relocate” and that conservationists “burn a different section of the preserve” each year to ensure that animals have an abundant area to graze while other areas are being burned.
 - H.** Incorrect. According to the information in paragraph 4, conservationists commonly target invasive red cedar trees because they are tall trees that “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” Since the focus is on the harm that the invasive red cedar can cause, the author would be unlikely to agree that conservationists should consider the helpful aspects of invasive species before executing a controlled burn.

33. The question asks how the diagram and its text provide additional support for the topic presented in the passage.

- A. CORRECT.** The text of the diagram states that “by using a patch-burn method, conservationists and farmers can reduce the risk of unintentional fires and control where grazing animals, such as bison, roam.” By showing the pattern of controlled burns and the resulting bison migration in a given area, the diagram depicts how the landscape changes as the patch-burn method is applied.
- B.** Incorrect. Although the text mentions areas “where grazing animals, such as bison, roam,” the diagram does not depict distinctive features of the land such as trees or brush and therefore does not indicate that patch-burn fires are best suited for use in areas with certain features.
- C.** Incorrect. While the text mentions “grazing animals, such as bison” and the diagram shows the bison grazing in only one area, the diagram and its text do not indicate that the patch-burn method is used on uninhabited land.
- D.** Incorrect. While the areas of land depicted in the diagram do indicate that the sizes of the areas differ, the text provided does not compare the sizes of the areas burned by the patch-burn method with those of unburned areas or indicate that this factor is important in reducing the risk of uncontrolled fires or controlling “where grazing animals, such as bison, roam.”

Cross-Purposes

34. The question asks how the similarity in the construction of lines 1 and 8 contributes to the meaning of the poem.

- E. CORRECT.** In line 1, the first speaker asserts, “What I am is *built*: concrete and steel,” and in line 8 the second speaker states, “*What I am is motion. I am water, and I am older.*” The similarities in the construction of these lines contribute to the meaning of the poem by establishing each speaker’s defining feature.
- F.** Incorrect. The focus of the lines is defining the speakers’ individuality, not how one speaker resolves a problem created by the other.
- G.** Incorrect. The structure is not stating in line 1 that it is limited because it was built to stand in place; on the contrary, the structure is stating that this sense of purpose and permanence is its strength.
- H.** Incorrect. Although in these lines the first speaker asserts “I am . . . *built*: concrete and steel” (line 1) and the second speaker asserts “*I am . . . motion*” (line 8), the construction of these lines does not contrast the stability and instability of the speakers. Rather, each speaker highlights its own features.

- 35.** The question asks how lines 2–4 and 12–14 contribute to the development of a central idea in the poem.
- A.** Incorrect. Although the phrases “remain[ing] at the apex of the leap” in line 3 and “*I catch everything*” in line 13 suggest the idea of endurance and control, the lines do not establish that both the structure and the water have endurance and control, because the water also states, “*I pool / and flow wherever gravity takes me*” (lines 10–11).
 - B. CORRECT.** The lines “I am what every athlete / wants” (lines 2–3) and “*I am the blood flowing in the runner’s chest*” (line 12) communicate that each speaker is an object of admiration and a powerful force.
 - C.** Incorrect. The lines describe opposing characteristics: the structure’s description conveys stillness—remaining “up in the air” (line 4)—while the water’s description conveys movement—“*flowing in the runner’s chest*” (line 12).
 - D.** Incorrect. The first speaker states, “I am what every athlete / wants” in lines 2–3, and the second speaker states, “*I am the blood flowing in the runner’s chest*” in line 12. The similarity of these metaphors may seem to suggest interrelationship, but the structures do not reveal surprise that they are interrelated.
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- 36.** The question asks which idea the use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys in the poem.
- E.** Incorrect. Although in line 29 the structure refers to itself as “being rebuilt” or taking on new forms, this idea is expressed to reinforce the idea that the structure’s presence is eternal (“a friend of time,” line 30). The use of the words “siblings” and “my sisters and brothers” in lines 31–32 does suggest that a variety of structures exist, but no comparison is drawn to suggest that the varieties of structures are more diverse than the forms of water.
 - F.** Incorrect. While the use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that structures can be replicated by being built, it does not convey the idea that the number of human-made structures is rapidly increasing.
 - G.** Incorrect. Although in line 33 the structure states, “We stitch across the rip you make,” suggesting that water passes under structures, the use of the words “siblings” and “my sisters and brothers” in lines 31–32 does not convey the idea that the structures that the water passes under are similar-looking.
 - H. CORRECT.** The use of the words “siblings” and “my sisters and brothers” in lines 31–32 conveys the idea that the structure is powerful because it is one of many and because these structures “stitch across the rip” (line 33) that water makes.

37. The question asks what the comparison in lines 33–35 shows about the structure.

- A.** Incorrect. Although the structure states in line 33 that structures like itself “stitch across the rip” water makes, which may seem to suggest that the structures restore beauty to a ruined landscape, the language in the lines is used only to suggest that the structure is a tool used to unify the physical landscapes that humans inhabit.
 - B.** Incorrect. While the water states that it enables “*empires to rise*” (line 25), implying that it is needed for society to thrive, the structure never expresses the idea that it serves the purpose of bringing people together through its existence.
 - C.** Incorrect. Although the phrases “We stitch across” (line 33) and “We bind you up” (line 35) suggest the existence of boundaries, the comparisons made in lines 33–35 do not help show that the structure provides clear boundaries for natural environments.
 - D. CORRECT.** The speaker states, “We are steel thread to the human needle” (line 34), which illustrates that the structure and others like it are tools used by humans to “bind . . . up” (line 35) or overcome “the rip” (line 33) that the water creates in the earth.
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38. The question asks how the last stanza conveys a central idea in the poem.

- E.** Incorrect. Although in the last stanza the water states, “*my vapors cling. / They bring out your softness, your rust,*” the water does not depend on the structure; instead, the water destroys it over time. The structure depends on the power of water for its ability to fulfill its function.
- F.** Incorrect. The last stanza refers to the opposing speaker (the structure) and not to any other structure.
- G.** Incorrect. While in the last two lines of the poem the water states, “*Because I am, / above all else, patient. I will wait for you,*” implying that the water can withstand the ravages of time, the phrase “*your softness, your rust*” (line 38) indicates that the structure cannot. Therefore, the last stanza does not reveal that the passage of time will render both the structure and the water obsolete.
- H. CORRECT.** In lines 36–38, the water describes how its “*vapors cling*” to the structure, bringing out the structure’s “*softness*” and “*rust,*” destroying the structure over time. Also, in line 42, the water says it is “*patient*” and “*will wait for*” the structure, suggesting that the speaker will be around long after the structure is gone.

39. The question asks how the implication in lines 41–42 is supported by other lines in the poem.
- A. **CORRECT.** The words “*patient*” and “*wait*” in line 42 suggest that the water has the ability to outlast the structure, because the water doesn’t weaken as it ages.
 - B. Incorrect. Although the statement “*No human / built me*” in lines 9–10 suggests that the speaker existed prior to humans, which may seem to support the idea of endurance in line 42, this answer is incorrect because in lines 41–42 the speaker is referring to outlasting the structure, not humans.
 - C. Incorrect. While the statement “*It all washes down through me*” in line 14 suggests that everything in the natural world is interrelated, the water sets itself apart from the human-made structure because it asserts that it will outlast the other structure and is “*above all else, patient*” (line 42).
 - D. Incorrect. In line 26, the water’s knowledge does not make its ability to wait any stronger—rather, its seemingly unending lifespan does.
-
40. The question asks how the poet develops the two points of view.
- E. Incorrect. While the poem relates how the water views the structure as “*an artifact / slowly decaying*” in lines 23–24 and the structure refers to itself as “a friend of time” in line 30, the poet does not give an account of a discussion about the future of human civilization between the structure and the water in the poem.
 - F. Incorrect. While the speakers do discuss their impact on the environment, there is no narrator speaking for them.
 - G. Incorrect. Although the structure states it is made of “concrete and steel” (line 1) and is a “steel thread to the human needle” (line 34), only the water claims to possess power over nature, stating that “*all washes down through me*” (line 14) and “*what I am is power*” in line 22.
 - H. **CORRECT.** The poet develops the speakers’ points of view by personifying (giving human characteristics to something nonhuman such as an object or animal) the structure and the water, allowing them to debate by criticizing each other and declaring their own importance.
-
41. The question asks how the form of the poem contributes to its meaning.
- A. Incorrect. The number of lines in each stanza does not emphasize the importance of the two speakers.
 - B. Incorrect. Italics are used mainly to designate the voice of the second speaker (the water).
 - C. **CORRECT.** The alternating positions of the stanzas create the appearance of a conversation in which the speakers share their opposing points of view.
 - D. Incorrect. The lack of rhyme scheme or meter is intended to create a conversational tone rather than reflect the changes the water causes or experiences.

Excerpt from "Impressions of an Indian Childhood"

- 42.** The question asks how the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" affect the tone of paragraph 1 in the excerpt.
- E.** Incorrect. Although the author describes in paragraph 1 the setting of her childhood experiences, the positive wording of the phrases the author uses in the paragraph ("swept freely" and "perfume of sweet grasses") does not suggest a tone of sadness the author feels when she reflects on her former way of life.
 - F.** Incorrect. Although the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" used in paragraph 1 create a positive tone, the phrases do not suggest an enthusiasm for the author's work but rather an appreciation of the peaceful beauty of her childhood.
 - G. CORRECT.** In paragraph 1, the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" are used to describe where the author's childhood experiences took place. The phrases create a tone of fondness and evoke a feeling of happiness through their lyrical sensory detail: "swept freely" suggests a sense of joyful possibility, while "perfume," "sweet," and "cool" convey delight.
 - H.** Incorrect. Although the author describes her mother's beadwork lessons as "confining" in paragraph 7, the phrases in paragraph 1 do not suggest that the author feels conflicting or mixed emotions toward her work and her mother. Instead, the phrases convey a positive tone by affectionately describing the author's childhood home.
-
- 43.** The question asks what the phrase "just as an artist arranges the paints upon his palette" in paragraph 2 suggests in the excerpt.
- A. CORRECT.** In paragraph 2, by comparing the way her mother arranges the beads to the way a painter "arranges the paints upon his palette," the author emphasizes that her mother approaches her craft just as a painter does, thus suggesting that beadwork is a true form of art.
 - B.** Incorrect. Although the author mentions "bunches of colored beads" in paragraph 2, this detail does not provide enough evidence for the idea that color inspires beadworkers. The phrase "just as an artist arranges the paints upon his palette" indicates the connection of beadwork to other forms of art in general, not necessarily to the specifics of color as a source of inspiration.
 - C.** Incorrect. In paragraph 2, the author describes her mother "untying the long tasseled strings" and then spreading "upon a mat beside her bunches of colored beads." However, the phrase "just as an artist arranges the paints upon his palette" does not suggest that all artistic activities begin with a series of steps. There is no mention in the passage of any other artistic activities involving multiple initial steps.
 - D.** Incorrect. In paragraph 2, the author describes how her mother "spread upon a mat beside her bunches of colored beads" as the first step in the artistic process described in the passage. Therefore, the comparison between the mother's process and a painter arranging paints on a palette suggests that the mother is creating art, not imitating it. There is no indication that the mother is copying a technique she has seen in other art forms.

- 44.** The question asks how the author’s use of sequence in paragraphs 1 and 2 contributes to the development of ideas in the excerpt.
- E.** Incorrect. In paragraph 2, the author does list the steps her mother takes in preparation to do beadwork, such as “untying the long tasseled strings” of the bag of beads, spreading the beads beside her on a mat, and using “a long, narrow blade” to trim the buckskin into shape. However, the language used to describe this sequence does not indicate that preparing to work with beads is difficult or complex.
 - F.** Incorrect. Although the author’s description of untying the bag of beads, spreading the beads upon a mat, smoothing out a sheet of buckskin, and trimming the buckskin into shape in paragraph 2 indicates that the mother follows a certain routine, it does not place any emphasis on working most efficiently by following the steps of the beading process in a precise order.
 - G.** Incorrect. In paragraph 2, the author describes her mother “untying the long tasseled strings that bound a small brown buckskin bag,” “spread[ing them] upon a mat beside her bunches of colored beads,” “smooth[ing] out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade” to trim the buckskin. Although these descriptions do outline the steps in her process for creating beadwork, they do not emphasize the time required to do so, since the author does not mention in the excerpt how long it took her mother to fully prepare for and complete the large and small tasks in the activity of beading.
 - H. CORRECT.** In paragraph 1, the author describes how the morning begins with her mother rolling up the canvas of the wigwam and allowing the breeze to come in. In paragraph 2, the author uses sensory language and precise sequencing to describe the way her mother prepares the beading materials by untying “the long tasseled strings that bound a small brown buckskin bag,” spreading the “bunches of colored beads” beside her, and smoothing out “a double sheet of soft white buckskin.” This combination of sequence and sensory language highlights the author’s enthusiasm for beadwork by emphasizing that the author pays close attention to her mother’s preparations.

- 45.** The question asks how the details in paragraph 3 convey a central idea of the excerpt.
- A.** Incorrect. In paragraph 2, the author mentions how her mother “worked upon small moccasins for her small daughter” and when she did, the author “became intensely interested in her [mother’s] designing.” However, in paragraph 3, the author is interested in her mother’s work mainly as part of her “lessons in the art of beadwork,” not because she knew her mother was making something for her.
 - B.** Incorrect. In paragraph 3, the author receives “practical observation lessons in the art of beadwork” and describes how “from a skein of finely twisted threads of silvery sinews my mother pulled out a single one” and “pierced the buckskin, and skillfully threaded it with the white sinew.” The author describes the process in such detail that she provides no indication that she had difficulty learning through observation. The author also does not give any indication in the paragraph that she wanted to help her mother; she was there merely to observe and learn.
 - C.** Incorrect. Although the author refers to her beading lessons with her mother as “practical observation lessons in the art of beadwork” and indicates that she sat “close beside” her mother while observing her beadwork, the author provides no indication in the paragraph that she was determined to behave according to her mother’s standards or that she sought her mother’s approval.
 - D. CORRECT.** In paragraph 3, the author describes her mother’s artistry and craftsmanship by using language such as “skillfully threaded,” “picking up the tiny beads one by one,” and “twisting it carefully after every stitch.” These close observations indicate that the author greatly admired her mother’s mastery of her craft and the precision that went into every detail of her work.

- 46.** The question asks which sentence best summarizes the process of beading that is described in the excerpt.
- E.** Incorrect. In paragraphs 2 and 3, the author describes how at the beginning of the process her mother “smoothed out a double sheet of soft white buckskin” on a lapboard (paragraph 2) and how she strings the beads into a pattern. However, this sentence does not describe the steps that take place between the preparation and the stringing of the beads. Thus, this sentence does not best summarize the beading process.
 - F.** Incorrect. In paragraphs 2 and 3, the author describes the process her mother uses to string the beads with “the point of her thread, always twisting it carefully after every stitch” (paragraph 3). While this sentence includes some of the steps in the beading process, it does not describe the preparation that must take place before beginning the task, namely spreading the beads and the buckskin out on a table. Thus, this sentence does not best summarize the beading process.
 - G. CORRECT.** This sentence best summarizes the process of beading that is described in the excerpt because it includes details about each step in the process. In paragraph 2, the author explains how her mother “spread upon a mat beside her bunches of colored beads” and how “on a lapboard she smoothed out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade, she trimmed the buckskin into shape.” The author continues her description in paragraph 3, stating, “From a skein of finely twisted threads of silvery sinews my mother pulled out a single one. With an awl she pierced the buckskin, and skillfully threaded it with the white sinew. Picking up the tiny beads one by one, she strung them with the point of her thread, always twisting it carefully after every stitch.”
 - H.** Incorrect. In paragraphs 2 and 3, the author describes the process her mother uses as she “smoothed out a double sheet of soft white buckskin” (paragraph 2) on a lapboard before stringing the beads. While this sentence includes most of the steps in the beading process, it excludes the step of piercing the buckskin. This sentence also provides few details about the process of beading and uses vague wording to describe each step. Therefore, the sentence does not best summarize the beading process.

- 47.** The question asks how the idea that mastering moccasin design and creation requires experience is best illustrated in the excerpt.
- A. CORRECT.** In paragraph 6, the author states that when she became more familiar with elements of design, “a harder lesson was given me.” According to the author, sewing on porcupine quills is a much more difficult task to master because it requires experience in handling the poisonous porcupine quills, which is why her mother told her not to “do much alone in quills” until she was older (paragraph 6). This information best illustrates the idea that mastering moccasin design and creation requires experience.
 - B.** Incorrect. Although the author provides detailed descriptions of the materials used to make decorated moccasins (“colored beads” [paragraph 2]; “a skein of finely twisted threads of silvery sinews” [paragraph 3]; “tinted porcupine quills, moistened and flattened between the nails of the thumb and forefinger” [paragraph 6]), these descriptions do not illustrate the experience that is needed to gain mastery of moccasin design and creation.
 - C.** Incorrect. Although the author describes the color combinations she used in making moccasins (“I was pleased with an outline of yellow upon a background of dark blue, or a combination of red and myrtle-green. There was another of red with a bluish-gray that was more conventionally used” [paragraph 6]), this information mainly illustrates the author’s satisfaction with her moccasin design, not the importance of experience in mastering the creation and design of moccasins.
 - D.** Incorrect. In paragraph 7, the author tells of using a sharpened rod to spear gum from trees. She explains that she and her playmates used the rods to “[pry] up certain sweet roots” to find the gum. The detail of the sharpened rod is from a recollection about the playtime that followed the “confining lessons” of moccasin making. However, the sharpened rod was not used to create moccasins.

- 48.** The question asks how the author distinguishes her point of view from that of her mother.
- E.** Incorrect. In paragraph 4, the author explains that “it took many trials before I learned how to knot my sinew thread on the point of my finger, as I saw her do” and that the “difficulty was in keeping my thread stiffly twisted, so that I could easily string my beads upon it.” Although this explanation describes the author’s difficulty in performing the same task as her mother, it does not distinguish her point of view from that of her mother. In fact, they seem to share the same point of view regarding the importance of the technique the author is attempting to learn.
 - F. CORRECT.** In paragraph 5, the author distinguishes her point of view from that of her mother by describing their approaches to beadwork design. In the paragraph, the author states, “I usually drew easy and simple crosses and squares” and that “my original designs were not always symmetrical nor sufficiently characteristic, two faults with which my mother had little patience.” The author also distinguishes her point of view from that of her mother by stating that “the quietness of [my mother’s] oversight made me feel strongly responsible and dependent upon my own judgment.”
 - G.** Incorrect. In paragraph 6, the author states, “My mother cut off the prickly ends and burned them at once in the centre fire. These sharp points were poisonous, and worked into the flesh wherever they lodged. For this reason, my mother said, I should not do much alone in quills until I was as tall as my cousin Warca-Ziwin.” Although these instructions explain the importance of having experience and skill when working with quills, they do not distinguish the author’s point of view from that of her mother.
 - H.** Incorrect. In paragraph 7, the author describes her beadwork lessons as “confining” and states that she liked to roam “over the hills” with her playmates after the lessons. However, she makes no mention of her mother in paragraph 7; the activities and ideas stated there belong to the author, not the mother.

49. The question asks which sentence best describes how the sentence from paragraph 7 fits into the overall structure of the excerpt.
- A. Incorrect. Though the author feels humiliated “when some boldness of mine drew forth a rebuke from” her mother (paragraph 5) and characterizes her lessons with her mother as “confining” (paragraph 7), the overall passage does not portray a demanding relationship between the author and the mother. The shift introduced in the sentence from paragraph 7 is not from one of the author’s relationships to another; it is from work to play.
 - B. Incorrect. In paragraph 6, the author explains how working with porcupine quills is difficult because the “sharp points were poisonous, and worked into the flesh wherever they lodged.” Although this sentence suggests that working with porcupine quills was challenging, the sentence from paragraph 7 does not signal a change from the challenging aspects of life on the reservation to the advantages of living on the prairie. Most of paragraph 6 describes the author’s pleasure in creating designs in different colors.
 - C. **CORRECT.** In the sentence from paragraph 7, the author refers to her beadwork lessons as “confining” and states that after the lessons, she “was wild with surplus spirits” and “found joyous relief” in being outside and running around. The phrases “surplus spirits” and “joyous relief” highlight a sense of freedom that stands in strong contrast to the “confining” nature of the author’s beadwork lessons, which required intense focus and control.
 - D. Incorrect. In paragraph 7, the author describes how “many a summer afternoon” after her beadwork lessons, she and her friends used “a light sharpened rod” to gather “sweet roots” and “little crystal drops of gum.” She then explains that they later “tossed away our gum, to return again to the sweet roots.” However, the sentence from paragraph 7 does not conclude the progression of events in the narrative by describing the sequence of events at the end of the author’s day; the sentence appears at the beginning of paragraph 7 and provides a contrast with events from the previous paragraph.

- 50.** The question asks how the table after paragraph 7 expands upon a central idea in the excerpt.
- E. CORRECT.** The table provides the chronology from the 1500s, when the Dakota created beadwork using “beads made from bones, shells, stones, and animal teeth,” to the 1830s, when the Dakota began “using glass beads,” and the 1900s, when they created items to “sell outside their community.” Thus, the table helps expand on a central idea by showing that the craft the author was learning is a tradition that has endured through many generations.
 - F.** Incorrect. Although the table shows that the Dakota used “beads made from bones, shells, stones, and animal teeth” in the 1500s and that by the 1830s began “using glass beads in clothing, artwork, and decorations in place of Native-made beads,” it does not provide any information about the type of materials used by the author’s family.
 - G.** Incorrect. While the information included in the table states that “European traders [brought] glass beads to North America” in the 1500s and that by the 1920s the Dakota created “items to sell outside their community,” there is no mention of whether the uniqueness of Dakota beadwork was recognized in Europe.
 - H.** Incorrect. The table indicates that by the late 1600s the Dakota began trading with French traders from Europe who brought glass beads to the Americas and that by 1830 the Dakota were “using glass beads in clothing, artwork, and decorations in place of Native-made beads.” However, the table provides no information about whether this work incorporated color. Therefore, the table does not show that the author was able to incorporate color into her craftwork as a result of trade with other peoples.

Excerpt from “Niagara Falls”

- 51.** The question asks for a specific detail from paragraph 2 that conveys the central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1).
- A.** Incorrect. Although the author describes the water as “richly diaphanous as a precious stone” and states that it “glow[s] from within with a deep, inexplicable light” in paragraph 2, the comparison does not convey the central idea that the Falls communicate a feeling of “unintelligible disaster” (paragraph 1); rather, the description communicates a feeling of awe.
 - B.** Incorrect. The details in paragraph 2 about the flow of colors in the water are described as an “ever-altering wonder,” which conveys a sense of beauty, not a sense of disaster.
 - C.** Incorrect. The rainbows in paragraph 2 are described as “vivid” and accompanying someone “courteously” while he or she walks, which contributes to the idea that the appearance and disappearance of the rainbows are a pleasant experience and not disastrous.
 - D. CORRECT.** The sound of falling is described in paragraph 2 as “a noise of unspecified ruin,” so this option is correct because it best connects with the idea of “unintelligible disaster” mentioned in paragraph 1.

- 52.** The question asks for the effect of the comparison being made in the sentence in paragraph 2.
- E.** Incorrect. Neither “lacework and woven foam” (paragraph 2) nor the quality of being extremely level are related to timelessness.
 - F.** Incorrect. Although the author states in paragraph 1 that “the real secret of the beauty and terror of the Falls is not their height or width, but the feeling of colossal power,” the purpose of comparing the American Falls to a “long curtain of lacework and woven foam” in paragraph 2 is not to explain the secretive nature of the Falls but rather to describe their beauty and uniformity.
 - G. CORRECT.** The word “lacework” in the sentence from paragraph 2 suggests an elegant piece of craftsmanship, and the “one long curtain” and “extraordinarily level” aspects of the Falls mean that the Falls are uniform or consistent.
 - H.** Incorrect. Although the author states in paragraph 1 that the Falls inspire a “feeling of colossal power,” in paragraph 2 the author describes the American Falls as “delicate and fragile.” Therefore, the purpose of the comparison in paragraph 2 is not to communicate the intense strength of the Falls.
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- 53.** The question asks for the statement that best describes how the sentence from paragraph 3 fits into the overall structure of the excerpt.
- A.** Incorrect. Although in paragraph 2 the author describes the beauty of the Falls as both an “ever-altering wonder” and an “assault of wind and spray,” in paragraph 3 the author does not signal a change from the positive aspects of the Falls to the negative aspects. Instead, the author provides a description of the river and the rapids below the Falls.
 - B.** Incorrect. While the author compares the water of the river to “a slipping floor of marble, green with veins of dirty white, made by the scum that was foam” in paragraph 3, the statement that the lower rapids are “more terrifying than the Falls, because less intelligible” does not indicate a progression from the literal description of the water to a discussion of timeless truths. Instead, the author is merely describing all aspects of the rapids, both literally and figuratively.
 - C. CORRECT.** The first sentence of paragraph 3 moves the description “beyond the foot of the Falls” to “the river” and then the paragraph begins to describe this location in further detail (“a dull sage green,” “hurries more swiftly,” “smooth and ominous,” “waters boil and eddy”) before reinforcing this shift by confirming it again with the words “These are the lower rapids, a sight more terrifying than the Falls.”
 - D.** Incorrect. Although the author states that the waters of the rapids “boil and eddy” and suggests that the rapids are “less intelligible,” these statements do not introduce a contrast between the obvious and the hidden features of the rapids. They merely describe a feature and the sight of the lower rapids.

54. The question asks for the sentence from the excerpt that best supports the idea that the essence of the Falls lies in their emotional impact.

- E. CORRECT.** The first sentence in the excerpt establishes that “the real secret of the beauty and terror of the Falls” lies in “the feeling of colossal power and of unintelligible disaster.” This option states that “if that [feeling] were taken away, . . . the heart would be gone,” meaning that the emotional impact of the Falls is essential.
 - F.** Incorrect. While “delicate” and “fragile” are words that can be connected with certain kinds of emotions, in the sentence in the option they are connected with physical beauty.
 - G.** Incorrect. While the sentence in the option describes the power of the Falls to engage one in thought, it does not best support the idea that the essence of the Falls lies in their emotional impact.
 - H.** Incorrect. The sentence in the option describes thoughts one may have while watching the Falls and is not focused on the Falls’ emotional impact.
-

55. The question asks how the sentence from paragraph 4 contributes to the development of ideas in the excerpt.

- A.** Incorrect. The sentence focuses on the idea that the Falls are a great place for contemplation but does not clarify that these thoughts are life-changing.
- B.** Incorrect. The sentence does not describe focused thoughts of a personal nature; the grand, sweeping nature of the Falls inspires thoughts of the same caliber as “the passage of empires.”
- C.** Incorrect. The sentence is about how the Falls inspire great thoughts but is not about how difficult it is to grasp the grandeur of the Falls.
- D. CORRECT.** The description of “cloudy thoughts of destiny and the passage of empires” in the sentence refers to the types of thoughts a person might have while observing the Falls.

- 56.** The question asks how the discussion of human life and history is illustrated in paragraph 4 of the excerpt.
- E.** Incorrect. In paragraph 4, the author compares the rainbows visible in the Falls to “the arts and beauty,” which share the rainbows’ dependence on “the stream of life” that is “caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased.” This comparison does not illustrate the idea that human life and history travel toward the same ending but rather that art and beauty, like human beings, are unable to “stay or direct or affect” their ultimate fate.
 - F. CORRECT.** The author concludes in paragraph 4 that the Falls can be compared to people and history by writing, “both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood.”
 - G.** Incorrect. Although in paragraph 4 the author states, “One is drawn back, strangely, to a contemplation of the Falls” and provides an account of “a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life,” the author does not provide details to show that every observer’s experience with the Falls is different. Rather, the author explains that “the Victorian lies very close below the surface in every man” (paragraph 4).
 - H.** Incorrect. While the setting at night does provide a place of contemplation, the author notes the “dark flood” as the overall illustration of the human experience.
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- 57.** The question asks for the statement the author would agree with most.
- A. CORRECT.** In paragraph 4, the author states that the Falls make a person feel “with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending.” Later, the final sentence says, “With some such thoughts does the platitudinous heart win from the confusion and thunder of a Niagara peace.”
 - B.** Incorrect. Although in paragraph 4 the author states that “one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara” and that “a man’s life is of many flashing moments,” the author does not suggest that one will always have regrets no matter where one’s path goes in life.
 - C.** Incorrect. While the excerpt discusses fear when experiencing the power of the Falls, the excerpt does not support the idea that one should defy fear.
 - D.** Incorrect. The excerpt states in paragraph 4 that art is “unable to stay.”

- 58. (-0.8)** First distribute $\frac{3}{5}$ over $(2x + 5)$ to get the expression $\frac{6}{5}x + 3 - 2x$.

In order to combine the like terms, first express $-2x$ as $-\frac{10}{5}x$ and then add the like terms.

$$\frac{6}{5}x + 3 + \left(-\frac{10}{5}x\right) = -\frac{4}{5}x + 3.$$

The coefficient of x is $-\frac{4}{5}$.

When expressed as a decimal, $-\frac{4}{5} = -0.8$.

- 59. (5)** There will be 5 different outcomes with a sum of 6.

$$1 + 5 = 6$$

$$2 + 4 = 6$$

$$3 + 3 = 6$$

$$4 + 2 = 6$$

$$5 + 1 = 6$$

- 60. (95)** First, find the perimeter of the figure.

Two sides do not have labels. Because the top of the figure measures 13 cm and the bottom shows a length measuring 8 cm, the horizontal side without a label measures 5 cm $(13 - 8)$.

Because the left side of the figure measures 6 cm and the right side shows a length measuring 3 cm, the vertical side without a label measures 3 cm $(6 - 3)$.

So the total perimeter of the scale drawing is

$$13 + 3 + 5 + 3 + 8 + 6 = 38 \text{ cm}$$

Use the scale to find the perimeter of the actual garden.

$$\frac{1 \text{ cm}}{2.5 \text{ m}} = \frac{38 \text{ cm}}{p \text{ m}}$$

$$p = 2.5 \times 38 = 95$$

- 61. (21)** The 11:00 a.m. temperature is 3.5 times greater than the 9:00 a.m. temperature. The 9:00 a.m. temperature was 4° F .

$$4 \times 3.5 = 14$$

The temperature increased from -7° F at 5:00 a.m. to 14° F at 11:00 a.m., which is an increase of 21° F .

- 62. (32)** The volume of a triangular prism is found by multiplying the area of the triangular base by the height of the prism.

The area of the triangular base of the prism is $\frac{1}{2}bh = \frac{1}{2}(4)(8) = 16$.

The height of the triangular prism is 2 inches.

So the volume of the triangular prism, in cubic inches, is $16 \cdot 2 = 32$.

- 63. (A)** The x -axis represents the length of the pole, in feet, and the y -axis represents the weight of the pole, in ounces.

The point (1, 4) means that a 1-foot pole would weigh 4 ounces.

Since the graph is linear, this shows that for every 1 foot of length, the pole weighs 4 additional ounces.

So the unit rate is 4 ounces per foot.

- 64. (F)** Find the sum of $2.5 + (-4.5)$.

$$2.5 + (-4.5) = 2.5 - 4.5 = -2$$

Point B is located at -2 .

65. (C) $\frac{9}{2x} = \frac{3y}{8}$

$$9 \times 8 = 72$$

$$2x \times 3y = 6xy$$

$$72 = 6xy$$

$$12 = xy$$

Since 72 divided by 6 is 12, the product of x and y equals 12.

- 66. (E)**

$$15,600 \times 12\% = 15,600 \times 0.12 = 1,872$$

$$15,600 - 1,872 = 13,728$$

67. (B) $4\frac{2}{3} \div 2\frac{1}{2} = \frac{14}{3} \div \frac{5}{2} =$
 $\frac{14}{3} \times \frac{2}{5} = \frac{28}{15} = 1\frac{13}{15}$

- 68.** (F) Since the ratio of assistants to players is $\frac{1}{6}$, that means

$$\frac{1}{6} = \frac{x}{36}$$

$$\frac{36}{6} = x$$

$$6 = x$$

There are a total of 6 assistants.

The ratio of coaches to assistants is then

$$\frac{3}{6} = \frac{1}{2}$$

-
- 69.** (A) If each post is 10 feet long and $3\frac{1}{3}$ feet of the post is below ground, then the difference between the two amounts is the height of the post that is above ground.

$$10 - 3\frac{1}{3}$$

$$\frac{10}{1} - \frac{10}{3}$$

$$\frac{30}{3} - \frac{10}{3} = \frac{20}{3} = 6\frac{2}{3} \text{ feet}$$

- 70.** (F) First substitute 2 for r in the equation.

$$p + 2r = r(p + 1) + 1$$

$$p + 2(2) = 2(p + 1) + 1$$

Then solve for p .

$$p + 2(2) = 2(p + 1) + 1$$

$$p + 4 = 2p + 2 + 1$$

$$p + 4 = 2p + 3$$

$$p + (4 - 3) = 2p + (3 - 3)$$

$$p + 1 = 2p$$

$$(p - p) + 1 = 2p - p$$

$$1 = p$$

The value of p is 1.

- 71. (B)** First, determine the rate at which Martina reads, in pages per day, using the rate at which Karen reads, 60 pages per day.

$$60 + 60 \cdot \frac{25}{100} = 60 + 60 \cdot 0.25 =$$
$$60 + 15 = 75$$

Next, determine the number of days it will take each person to complete the 1,500-page reading assignment.

$$\text{Karen: } \frac{1,500 \text{ pages}}{k \text{ days}} = \frac{60 \text{ pages}}{1 \text{ day}}$$

$$60k = 1,500$$

$$(60 \div 60)k = 1,500 \div 60$$

$$k = 25 \text{ days}$$

$$\text{Martina: } \frac{1,500 \text{ pages}}{m \text{ days}} = \frac{75 \text{ pages}}{1 \text{ day}}$$

$$75m = 1,500$$

$$(75 \div 75)m = 1,500 \div 75$$

$$m = 20 \text{ days}$$

Finally, determine the difference between the two numbers of days.

$$25 - 20 = 5$$

The answer is 5 days.

- 72. (H)** Claire's goal is to run at least 2,500 meters, and she has already run 650 meters.

$$2,500 - 650 = 1,850$$

Claire has at least 1,850 meters left to run. Divide by the distance around the track to find the number of laps she needs to complete.

$$1,850 \div 120 \approx 15.417$$

Since she wants to run at least 2,500 meters, round 15.417 up to 16. Claire needs to run 16 laps to meet her goal.

- 73. (D)** 2005 to 2010:

$$25\% = 0.25$$

$$200 \times 0.25 = 50$$

The 50 employees are added to 200. The new total number is 250.

2010 to 2015:

$$10\% = 0.10$$

$$250 \times 0.10 = 25$$

The 25 employees are added to 250. The total number of employees in 2015 is 275.

- 74. (E)** The probability of choosing a green candy is twice as great as the probability of choosing a red candy. There are 12 green candies.

$$12 = 2r$$

$$r = 6$$

So there are 6 red candies. 12 green candies + 4 yellow candies + 6 red candies = 22 total candies.

There are 4 yellow candies out of a total of 22 candies. The probability of choosing a yellow candy is

$$\frac{4}{22} = \frac{2}{11}$$

-
- 75. (B)** Since 100% means all customers,

$$100\% - 99.7\% = 0.3\%$$

Rewrite the percent as a decimal.

$$0.3\% = 0.003$$

Now rewrite the decimal as a fraction.

$$0.003 = \frac{3}{1,000}$$

- 76. (E)** There is a proportional relationship between the length of the race, x miles, and the number of water stations, y . The constant of proportionality is

$$\frac{y}{x} = \frac{2}{3}$$

$$y = \frac{2}{3}x$$

Therefore, the equation $y = \frac{2}{3}x$ represents this relationship.

-
- 77. (B)** If half the undecided voters (half of 20) vote in favor of building the park, the total number of "yes" votes from the survey will be 152.

$$142 + 10 = 152$$

There are 24,100 voters, and 200 residents were surveyed. Set up a proportion to solve.

$$\frac{152}{200} = \frac{x}{24,100}$$

$$\frac{19}{25} = \frac{x}{24,100}$$

$$(24,100)\left(\frac{19}{25}\right) = x$$

$$18,316 = x$$

78. (E) All the numbers are negative, so they are all less than zero. Consider the absolute value of each number and where it falls on a number line. The negative number closest to 0 will be the greatest.

The negative number with the greatest absolute value is -49 , so it has the least value.

The negative number with the next greatest absolute value is -1 , so it would fall next in order from least to greatest.

$-49, -1$

Compare the absolute values of

$-\frac{1}{49}$ and $-\frac{1}{7}$.

$$\frac{1}{49} < \frac{1}{7}$$

Therefore, the numbers listed from least to greatest are:

$$-49, -1, -\frac{1}{7}, -\frac{1}{49}$$

$-\frac{1}{49}$ is the greatest.

79. (C) Calculate the decimal equivalent of

$$-\frac{13}{11}$$

$$-\frac{13}{11} = -1.18181818... = -1.\overline{18}$$

80. (H) Each loaf of bread requires $\frac{1}{5}$ ounce of salt. Therefore, the baker can make 5 loaves of bread with 1 ounce of salt.

Multiply to find the number of loaves that can be made with 40 ounces of salt.

$$5 \times 40 = 200$$

81. (D) First, subtract to simplify.

$$\frac{1\frac{5}{7} - 1\frac{6}{7}}{3\frac{4}{7} - 3\frac{6}{7}} = \frac{-\frac{1}{7}}{-\frac{2}{7}} =$$

Follow the process for dividing fractions:

$$\left(-\frac{1}{7}\right) \times \left(-\frac{7}{2}\right) = \frac{7}{14} = \frac{1}{2}$$

- 82.** (F) Split the compound inequality into two inequalities.

$$-5 \leq 1 - 3x \quad \text{and} \quad 1 - 3x \leq 4$$

For each inequality, subtract 1 from each side.

$$-6 \leq -3x \quad \text{and} \quad -3x \leq 3$$

For each inequality, divide both sides by -3 . Note that dividing each side of an inequality by a negative number changes the direction of the inequality.

$$2 \geq x \quad \text{and} \quad x \geq -1$$

Combining the pieces gives the compound inequality $-1 \leq x \leq 2$.

The solution is that x is greater than or equal to -1 and less than or equal to 2 , so choose the graph with filled circles at -1 and 2 , with the filled segment between the circles.

- 83.** (D) Set up a proportion:

$$\frac{1 \text{ sind}}{0.75 \text{ plunk}} = \frac{x \text{ sinds}}{8 \text{ plunks}}$$

$$1(8) = 0.75x$$

$$8 = \frac{75}{100}x$$

$$8 = \frac{3}{4}x$$

$$8\left(\frac{4}{3}\right) = x$$

$$\frac{32}{3} = x$$

$$10\frac{2}{3} = x$$

$$10.67 \approx x$$

-
- 84.** (F) $8x - (7 + 2.5x) + 2$

First, distribute -1 over $7 + 2.5x$.

$$8x - 7 - 2.5x + 2$$

Then combine the like terms.

$$5.5x - 5$$

The simplified form of the expression is $5.5x - 5$.

- 85.** (B) 3 bicycles every 4 hours = 3 bicycles every 240 minutes (4×60 min)

$$240 \text{ min} \div 3 \text{ bicycles} = 80 \text{ min per bicycle}$$

$$5 \text{ bicycles} \times 80 \text{ min} = 400 \text{ min}$$

$$\frac{400 \text{ min}}{60 \text{ min/hr}} = \frac{20}{3} \text{ hr} = 6\frac{2}{3} \text{ hr}$$

$$\frac{2}{3} \times 60 \text{ min} = 40 \text{ min}$$

$$6\frac{2}{3} \text{ hr} = 6 \text{ hr } 40 \text{ min}$$

- 86.** (G) Jar Q contains 12 balls, and the probability of drawing a yellow ball at random is $\frac{1}{3}$.

$$\frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$$

There are 4 yellow balls in Jar Q.

Jar R contains 8 balls, and the probability of drawing a yellow ball at random is $\frac{3}{4}$.

$$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$$

There are 6 yellow balls in Jar R.

Jar S contains all the balls from Jar Q and Jar R.

$$12 + 8 = 20$$

There are 20 balls in Jar S.

$$4 + 6 = 10$$

There are 10 yellow balls in Jar S.

$$\frac{10}{20} \div \frac{10}{10} = \frac{1}{2}$$

The probability of drawing a yellow ball at random from Jar S is $\frac{1}{2}$.

- 87. (D)** The ratio of pretzels to raisins in Gia's bag of snack mix, 12:9, is equivalent to the ratio of pretzels to raisins in Trevon's bag, 16:12.

$$\frac{12}{9} = \frac{16}{12} = \frac{4}{3}$$

- 88. (G)** First, substitute $4x$ for each y in the expression.

$$3y + 2(3y + 5) - x =$$

$$3(4x) + 2[3(4x) + 5] - x$$

Then simplify the expression.

$$3(4x) + 2[3(4x) + 5] - x$$

$$12x + 2(12x + 5) - x$$

$$12x + 24x + 10 - x$$

$$12x + 24x - x + 10$$

$$35x + 10$$

The simplified expression is $35x + 10$.

- 89. (C)** The formula for area of a circle is $A = \pi r^2$.

The radius of a circle is half its diameter.

The diameter is given for each circle.

$$18 \div 2 = 9, \text{ and } 12 \div 2 = 6$$

$$9^2\pi - 6^2\pi = (81 - 36)\pi = 45\pi$$

- 90. (F)** First, determine 10% of $|x|$.

$$0.10 \cdot |x| = 0.10 \cdot |-4| = 0.10 \cdot 4 = 0.4$$

Then determine the sum of x and 10% of $|x|$.

$$-4 + 0.4 = -3.6$$

The sum is -3.6 .

- 91. (A)** The volume of a cube is $V = s^3$, where s is the length of one edge.

$$\text{So } 512 = s^3, \text{ and } s = \sqrt[3]{512}.$$

If you are not sure how to find the cube root, you can estimate.

We know $10 \times 10 \times 10 = 10^3 = 1,000$, so $\sqrt[3]{1,000} = 10$.

Since 512 is less than 1,000, the answer must be less than 10. The only given option less than 10 is 8. Double-check to make sure this is correct:

$$8^3 = 8 \times 8 \times 8 = 512.$$

- 92. (F)** The temperature on Tuesday was 84° F, which was 5% higher than the temperature on Monday.

This can be represented by the equation $84 = 1.05x$.

Dividing both sides of this equation by 1.05 gives $x = 80$.

Therefore, the temperature on Monday was 80° F.

Since the temperature on Wednesday was 10% lower than the temperature on Monday, the difference between the two temperatures would equal $(10\%)(80) = 8$.

- 93. (B)** First, determine all possible factors of 168. One method of doing this is to use a table to list pairs of factors.

Factors of 168	
1	168
2	84
3	56
4	42
6	28
7	24
8	21
12	14

Then determine the group of three sequential factors, $(n - 1)$, n , and $(n + 1)$, where n is as large as possible. This group is 6, 7, and 8, where $n = 7$.

- 94. (E)** The total number of days (86) is divided by the number of days in a week (7).

$$86 \div 7 = 12, \text{ with a remainder of } 2$$

The 2 days are counted back from Tuesday, so the first performance was on a Sunday.

- 95. (C)** Add the taxes to the amount of the check to find Michael's total pay before taxes were deducted.

$$213 + 32 = 245$$

Divide the total pay by the number of hours to find the hourly pay rate.

$$245 \div 20 = 12.25$$

- 96. (G)** To find surface area, use the formula $A = 2(hw + hl + lw)$.

$$A = 2[(20 \times 40) + (20 \times 50) + (50 \times 40)]$$

$$A = 2(800 + 1,000 + 2,000)$$

$$A = 2(3,800)$$

$$A = 7,600 \text{ sq cm}$$

97. (C) The value of the car decreased \$5,000 in two years: \$15,000 to \$10,000.

$$5,000 \div 2 = 2,500$$

Therefore, the value of the car decreases \$2,500 each year. After 3 years, the car's value decreased \$7,500.

$$\text{So } 7,500 + 15,000 = 22,500.$$

98. (F) Assuming Alana picks 4 blue disks in a row, the number of blue disks and the total number of disks both decrease by 1 after each selection.

At the beginning, there are 4 blue disks out of 9 total disks, so the probability of selecting the first blue disk is $\frac{4}{9}$.

The probabilities of selecting blue for the next three selections are $\frac{3}{8}$, $\frac{2}{7}$, and $\frac{1}{6}$.

$$\frac{4}{9} \times \frac{3}{8} \times \frac{2}{7} \times \frac{1}{6} = \frac{24}{3,024} = \frac{1}{126}$$

99. (A) Rewrite the percent as a decimal:

$$\frac{1}{2}\% = 0.5\% = 0.005$$

So the correct answer must **not** equal 0.005.

Option A

$$\frac{0.005}{100} = 0.00005$$

Option B

$$\frac{1}{2} = 0.5 \div 100 = 0.005$$

Option C

$$\frac{5}{1,000} = 0.005$$

Option D

$$\frac{1}{200} = 0.005$$

Therefore, Option A is the correct answer. All answer options equal 0.005, except for Option A.

100. (H) To find out how many members there were in 2002, calculate 40% of 50 and then add it to 50.

$$50 \times 0.40 = 20$$

$$20 + 50 = 70 \text{ members}$$

To find out how many members there were in 2003, calculate 40% of 70 and then add it to 70.

$$70 \times 0.40 = 28$$

$$28 + 70 = 98 \text{ members}$$

To find out how many members there were in 2004, calculate 40% of 98 and then add it to 98.

$$98 \times 0.40 = 39.2$$

The result is 39.2, which is rounded to 39 to keep members to the nearest whole number.

$$39 + 98 = 137 \text{ members}$$

101. (D) $6x - 20 < 5x - 2(5 - 3x)$

Distribute the coefficient -2 on the right-hand side.

$$6x - 20 < 5x + (-2)(5) + (-2)(-3x)$$

$$6x - 20 < 5x - 10 + 6x$$

Subtract $6x$ from both sides.

$$-20 < 5x - 10$$

Add 10 to both sides.

$$-10 < 5x$$

Divide both sides by 5.

$$-2 < x$$

which is equivalent to

$$x > -2$$

- 102. (G)** The ratio is red:white:blue = 2:5:3.
Find the number of each color in a box of 30 paper clips.

$$2x + 3x + 5x = 30$$

$$10x = 30$$

$$x = 3$$

$$\text{Red: } 2x = 2(3) = 6$$

$$\text{White: } 5x = 5(3) = 15$$

$$\text{Blue: } 3x = 3(3) = 9$$

If one paper clip of each color is removed (3 total), there will be 8 blue paper clips out of 27 in the box. The probability that the next paper clip chosen will be blue is $\frac{8}{27}$.

- 103. (B)** Each option is divisible by 1, 2, 3, 4, 5, and 6.

Option A:

1,680 is evenly divisible by the first 8 positive integers.

Option B:

840 is evenly divisible by the first 8 positive integers and is less than 1,680.

Option C:

480 is not evenly divisible by 7.

$$480 \div 7 = 68.57$$

Option D:

420 is not evenly divisible by 8.

$$420 \div 8 = 52.5$$

Option B (840) is the correct answer.

- 104. (F)** One method of solving the problem is to use a table to represent the sample space. Let the three colors be red, blue, and green.

Window Color	Door Color	Wall Color
Red	Blue	Green
Red	Green	Blue
Blue	Red	Green
Blue	Green	Red
Green	Red	Blue
Green	Blue	Red

There are 6 possible combinations of the window color, the door color, and the porch color where no two parts are painted the same color.

- 105. (D)** Similar geometric figures have sides that are proportional.

$$\frac{10}{6} = \frac{x}{9}$$

$$\frac{5}{3} = \frac{x}{9}$$

$$x = \frac{(5)(9)}{3} = 15$$

Because $MN = NP$, both unknown sides are equal to 15. Therefore, the three sides of MNP are 15, 15, and 10. The perimeter of a triangle is the sum of its three side lengths.

$$15 + 15 + 10 = 40$$

- 106. (G)** First analyze the role of each variable in the expression $x^2yz^3|w|$.

x^2 will always be a positive number.

y can be a positive or a negative number.

z^3 can be a positive or a negative number.

$|w|$ will always be a positive number.

Next consider each answer option based on the possible values of the variables.

Option E:

Making x and w positive will not necessarily make the value of the expression positive; it will depend on the values of y and z .

Option F:

Making x and w negative will not necessarily make the value of the expression positive; it will depend on the values of y and z .

Option G:

The expressions x^2 and $|w|$ will always be positive. Therefore, making the values of y and z negative would result in the expression yz^3 being positive, since a negative multiplied by a negative is positive. Thus the given product would always be positive.

Option H:

The expressions x^2 and $|w|$ will always be positive. Therefore, making the value of y negative and the value of z positive would result in the expression yz^3 being negative, since a negative multiplied by a positive is negative. Thus the given product would always be negative.

107. (B) Use the joint probability formula $P(\text{black shirt first}) \cdot P(\text{red shirt second, given black shirt first})$.

Initially there are 3 black shirts out of 6 total shirts, so the probability of picking a black shirt first is $\frac{3}{6}$.

Once a black shirt is picked first, there is 1 red shirt out of 5 total shirts remaining.

So the probability of picking a red shirt second, given that a black shirt was picked first, is $\frac{1}{5}$.

Then $P(\text{black shirt first}) \cdot P(\text{red shirt second, given black shirt first})$
 $= \frac{3}{6} \cdot \frac{1}{5} = \frac{3}{10} = \frac{1}{10}$.

- 108. (E)** The volume of a cube with a side length of s is

$$V = s^3$$

Since 125 small cubes were used to build the large cube, $125 = s^3$.

Each side of the large cube is made up of 5 small cubes.

$$125 = 5^3$$

Since 5 small cubes make up each edge of the large cube, and each edge of the small cube measures 1 inch, the measure of each edge of the large cube is $1 \times 5 = 5$ inches.

- 109. (A)** The probability of Davina picking an odd-numbered ball from Box B is $\frac{2}{3}$. If Davina places an odd-numbered ball in Box A, then the probability of Yusuf picking an odd-numbered ball from Box A is $\frac{1}{3}$. The probability of both of these events happening is the product of the two probabilities.

$$\frac{2}{3} \times \frac{1}{3} = \frac{2}{9}$$

- 110. (E)** Since $|x + 1| \geq 2$, either $x + 1 \leq -2$ or $x + 1 \geq 2$.

Solving $x + 1 \leq -2$ for x gives $x \leq -3$.

Solving $x + 1 \geq 2$ for x gives $x \geq 1$.

A filled circle on a number line represents "or equal to." So the correct number line representation has filled circles at -3 and 1 , with the number line filled to the left of -3 for "less than" and to the right of 1 for "greater than."

- 111. (D)** The area of the kitchen floor equals the product of 12 and 7.5.

$$12 \times 7.5 = 90$$

The area of each square tile is the product of 0.75 and 0.75.

$$0.75 \times 0.75 = \frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$$

The number of tiles need to cover the floor is the quotient of 90 and $\frac{9}{16}$.

$$90 \div \frac{9}{16} = 90 \times \frac{16}{9} = 160$$

112. (E) First, determine the number of tickets sold on Sunday, x , using the total number of tickets sold on Saturday and Sunday, 30,000, and the number of tickets sold on Saturday, $4x$.

$$30,000 = 4x + x$$

$$30,000 = 5x$$

$$6,000 = x$$

Then determine the number of tickets expected to be sold on Monday, y , using the number of tickets sold on Sunday, 6,000.

$$6,000 = 3y$$

$$2,000 = y$$

The number of tickets expected to be sold on Monday is 2,000.

113. (C) The original area of the field was 4,000 square meters.

$$80 \times 50 = 4,000$$

When the field was enlarged, the length increased by 15%, so the new length is 92 meters.

$$80 \times 15\%$$

$$80 \times 0.15 = 12$$

$$80 + 12 = 92$$

The width increased by 10 meters, so the new width is 60 meters.

$$50 + 10 = 60$$

The new area of the field is 5,520 square meters.

$$92 \times 60 = 5,520$$

The percent increase is found by finding the difference between the two areas and dividing the increase by the original area.

$$5,520 - 4,000 = 1,520$$

$$1,520 \div 4,000 = 0.38 = 38\%$$

114. (E) Since x and y are both negative integers, both x^2 and y^2 are positive.

Therefore, both x^2y and xy^2 are negative, and both $-x^2y$ and $-xy^2$ are positive.

Because $x < y$ and both x and y are negative, $|y| < |x|$ and $y^2 < x^2$. So $|y^2| < |x^2|$.

Since $|y| < |x|$ and x and y are integers, $|xy^2| < |x^2y|$.

So $x^2y < xy^2$.

$$-xy^2 = |xy^2| \text{ and } -x^2y = |x^2y|$$

Therefore, $x^2y < xy^2 < -xy^2 < -x^2y$.

Answer Key for Sample Form B

1. A	14. H	27. A	40. H	53. C	66. E	79. C	92. F	105. D
2. E	15. C	28. F	41. C	54. E	67. B	80. H	93. B	106. G
3. B	16. G	29. C	42. G	55. D	68. F	81. D	94. E	107. B
4. G	17. B	30. E	43. A	56. F	69. A	82. F	95. C	108. E
5. B	18. H	31. C	44. H	57. A	70. F	83. D	96. G	109. A
6. F	19. B	32. F	45. D	58. -0.8	71. B	84. F	97. C	110. E
7. B	20. H	33. A	46. G	59. 5	72. H	85. B	98. F	111. D
8. G	21. C	34. E	47. A	60. 95	73. D	86. G	99. A	112. E
9. D	22. G	35. B	48. F	61. 21	74. E	87. D	100. H	113. C
10. G	23. D	36. H	49. C	62. 32	75. B	88. G	101. D	114. E
11. D	24. F	37. D	50. E	63. A	76. E	89. C	102. G	
12. E	25. A	38. H	51. D	64. F	77. B	90. F	103. B	
13. B	26. E	39. A	52. G	65. C	78. E	91. A	104. F	

GRADE 9 MATHEMATICS SAMPLE QUESTIONS

Blank grids are provided on page 273.

1. The side length of a certain square microchip, expressed in scientific notation, is 1.2×10^{-3} meter. If the area of this microchip is expressed in scientific notation as $b \times 10^a$ square meter, what is the value of a ?

2. A company surveyed 800 people about their use of Soap L and Soap M. The table shows the results.

SOAP SURVEY

	Use Soap M	Do Not Use Soap M
Use Soap L	148	252
Do Not Use Soap L	264	136

Based on the results, of those who do **not** use Soap L, $x\%$ use Soap M. What is the value of x , expressed as a whole number?

3. The values in the table represent a function. What value of R makes the function linear?

x	y
-4	2
-1	-1
3	R

4. What is the distance, in units, between the points $(3, 20)$ and $(11, 5)$?

- E. 8
F. 15
G. 17
H. 23

5. $3(x - 4) + 4x = 4 - x + 8(6 + x)$

What is the solution to the equation shown above?

- A. $x = 8$
B. $x = 65$
C. no solution
D. infinite number of solutions

6. Which expression represents a rational number?

- E. $\frac{3}{8}$
F. π
G. $\sqrt{3}$
H. $\sqrt{83}$

7. Which expression is equivalent to $\frac{6^{-10}}{6^2}$?

- A. -6^8
- B. $\frac{1}{6^{12}}$
- C. 6^{-5}
- D. 6^{12}

8. Which table best represents a linear function?

E.

x	y
-3	5
-1	3
0	1

F.

x	y
-2	7
-1	4
0	3

G.

x	y
-4	-17
-3	-12
1	8

H.

x	y
-1	3
0	3
2	5

9. The diameter of Biological Cell A is 6×10^{-7} meter. The diameter of Biological Cell B is 3×10^{-8} meter. Which statement correctly compares the diameters of these two cells?

- A. The diameter of Cell A is 2 times the diameter of Cell B.
- B. The diameter of Cell B is 2 times the diameter of Cell A.
- C. The diameter of Cell A is 20 times the diameter of Cell B.
- D. The diameter of Cell B is 20 times the diameter of Cell A.

10.

SOCCKER DATA

Player	Seasons Played	Goals Scored
Isabella	3	5
Porter	6	10
Jazmine	4	6
Colin	1	3

The data in the table show the number of seasons some players on a soccer team played versus the number of goals they scored. Which conclusion is supported by the data?

- E. There are multiple outliers in the data set.
- F. There is a positive association between seasons played and goals scored.
- G. There is a negative association between seasons played and goals scored.
- H. There is no association between seasons played and goals scored.

11. What is the value of y when
 $0.25(y + 8) = 15$?

- A.** 1.75
- B.** 3.25
- C.** 28
- D.** 52

12. What is the volume, in cubic inches, of a beach ball with a diameter of 24 inches?

- E.** 48π
- F.** 256π
- G.** 576π
- H.** $2,304\pi$

13. How many integers, n , satisfy the condition $5 < \sqrt{n} < 6$?

- A.** 0
- B.** 5.5
- C.** 10
- D.** 11

1. (-6) Since the microchip is a square, the area of the microchip is $(1.2 \times 10^{-3})^2$ square meter.

$$\begin{aligned} (1.2 \times 10^{-3})^2 &= (1.2)^2 \times (10^{-3})^2 \\ &= 1.44 \times 10^{-6} \end{aligned}$$

So the value of a , the exponent, is -6.

2. (66) First, determine the number of people who do not use Soap L.

$$264 + 136 = 400$$

Then determine what percentage of those people use Soap M.

$$\frac{264}{400} = 0.66 = 66\%$$

Since 66% of the people who do not use Soap L use Soap M, the value of x is 66.

3. (-5) A linear function consists of ordered pairs that make a linear equation true, with a consistent slope, m , and a y -intercept, b . Use the slope formula and the two given ordered pairs to determine the slope.

$$m = \frac{2 - (-1)}{-4 - (-1)} = \frac{3}{-3} = -1$$

Then use the slope and one of the given ordered pairs to determine the y -intercept. The equation is in slope-intercept form.

$$y = (-1)x + b$$

$$2 = (-1)(-4) + b$$

$$2 = 4 + b$$

$$-2 = b$$

Use the slope and the y -intercept to determine the value of R . The equation is in slope-intercept form.

$$y = (-1)x + -2$$

$$R = (-1)(3) + -2$$

$$R = -3 + -2$$

$$R = -5$$

4. (G) Use the Pythagorean theorem, $A^2 + B^2 = C^2$, to find the distance between the two given points. A right triangle can be drawn in the coordinate system using the two given points as vertices.

To determine the lengths of the legs of the right triangle, find the absolute values of the difference between the x -coordinates and the difference between the y -coordinates.

$$|3 - 11| = 8$$

$$|20 - 5| = 15$$

Use the lengths of the legs, 8 units and 15 units, to determine the length of the hypotenuse, h , which is the distance, in units, between the two given points.

$$8^2 + 15^2 = h^2$$

$$64 + 225 = h^2$$

$$289 = h^2$$

$$\sqrt{289} = h$$

$$17 = h$$

The length of the hypotenuse is 17 units.

5. (D) Use properties of equations to successively transform the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ (where a and b are different numbers) results.

$$3(x - 4) + 4x = 4 - x + 8(6 + x)$$

$$3x - 12 + 4x = 4 - x + 48 + 8x$$

$$3x + 4x - 12 = 4 + 48 - x + 8x$$

$$7x - 12 = 52 + 7x$$

$$(7x - 7x) - 12 = 52 + (7x - 7x)$$

$$0 - 12 = 52 + 0$$

$$-12 = 52$$

The simplest form of the given equation is $-12 = 52$, which is not a true statement. Therefore, there is no solution to the given equation.

6. (E) Since rational numbers have a decimal expansion that terminates or repeats, determine the decimal expansion of the number in each option. The option that represents a number with a decimal expansion that terminates or repeats is a rational number.

Option E:

$$\frac{3}{8} = 0.375$$

Option F

$$\pi = 3.14159\dots$$

Option G

$$\sqrt{3} = 1.73205\dots$$

Option H

$$\sqrt{83} = 9.11043\dots$$

Option E has a decimal expansion that terminates; therefore, it is a rational number. The decimal expansions for the other options do not terminate or repeat.

7. (B) Use the properties of integer exponents to generate a numerical expression that is equivalent to the given expression.

$$\frac{6^{-10}}{6^2} = \frac{1}{6^2 \times 6^{10}} = \frac{1}{6^{12}}$$

The given expression is equivalent to

$$\frac{1}{6^{12}}.$$

8. (G) Use the slope formula to determine the slope, m , between the ordered pairs in the table. If the slope between each pair of ordered pairs is the same, then the function is linear.

Option E:

Using the ordered pairs $(-1, 3)$ and $(-3, 5)$:

$$m = \frac{3 - 5}{-1 - (-3)} = \frac{-2}{2} = -1$$

Using the ordered pairs $(0, 1)$ and $(-1, 3)$:

$$m = \frac{1 - 3}{0 - (-1)} = \frac{-2}{1} = -2$$

Since the slopes do not match, this is not a linear function.

Option F:

Using the ordered pairs $(-2, 7)$ and $(-1, 4)$:

$$m = \frac{7 - 4}{-2 - (-1)} = \frac{3}{-1} = -3$$

Using the ordered pairs $(-1, 4)$ and $(0, 3)$:

$$m = \frac{4 - 3}{-1 - 0} = \frac{1}{-1} = -1$$

Since the slopes do not match, this is not a linear function.

Option G:

Using the ordered pairs $(-4, -17)$ and $(-3, -12)$:

$$m = \frac{-17 - (-12)}{-4 - (-3)} = \frac{-5}{-1} = 5$$

Using the ordered pairs $(-3, -12)$ and $(1, 8)$:

$$m = \frac{-12 - 8}{-3 - 1} = \frac{-20}{-4} = 5$$

The slopes match, so this is a linear function.

Option H:

Using the ordered pairs $(-1, 3)$ and $(0, 3)$:

$$m = \frac{3 - 3}{-1 - 0} = \frac{0}{-1} = 0$$

**Response continued
on next page**

Using the ordered pairs (0, 3) and (2, 5) :

$$m = \frac{3 - 5}{0 - 2} = \frac{-2}{-2} = 1$$

Since the slopes do not match, this is not a linear function.

Option G is the only linear function and is the correct answer.

- 9.** (C) First, translate both cell diameters to standard form.

$$6 \times 10^{-7} = 0.0000006$$

$$3 \times 10^{-8} = 0.00000003$$

Then use division to compare the two numbers.

$$0.0000006 \div 0.00000003 = 20$$

The diameter of Biological Cell A is 20 times the diameter of Biological Cell B.

- 10. (F)** First, reorder the ordered pairs so that the numbers of seasons played, x , are increasing.

$(1, 3), (3, 5), (4, 6), (6, 10)$

Then examine the numbers of goals scored, y , to determine whether there is a pattern.

The pattern is that as x increases, so does y . This exemplifies a positive association between x , the number of seasons played, and y , the number of goals scored.

- 11. (D)** Use properties of equations to determine the value of y in the given equation.

$$0.25(y + 8) = 15$$

$$0.25y + 2 = 15$$

$$0.25y = 13$$

$$\frac{0.25y}{0.25} = \frac{13}{0.25}$$

$$y = 52$$

The value of y in the given equation is 52.

- 12. (H)** The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$.

Since the diameter of the ball is 24 inches, the radius is half of that, or 12 inches.

$$V = \frac{4}{3}\pi(12)^3 = 2,304\pi$$

- 13. (C)** Since 5 is the square root of 25, and 6 is the square root of 36, the values of n that satisfy the given condition are all the integers greater than 25 and less than 36. That set of integers is $\{26, 27, 28, 29, 30, 31, 32, 33, 34, 35\}$. There are 10 numbers in the set, so Option C is the correct answer.

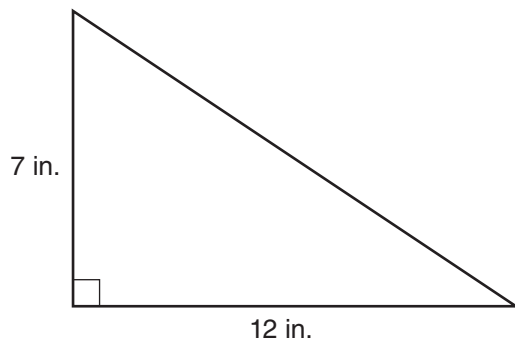
Answer Key for Grade 9 Mathematics

- | | | |
|-------|-------|-------|
| 1. -6 | 6. E | 11. D |
| 2. 66 | 7. B | 12. H |
| 3. -5 | 8. G | 13. C |
| 4. G | 9. C | |
| 5. D | 10. F | |

GRADE 8 GRID-IN SAMPLE PROBLEMS

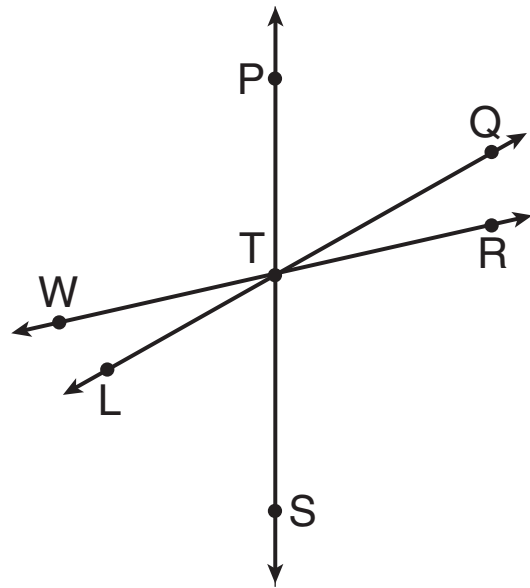
DIRECTIONS: Solve each question. You can use the extra grid-in answer sheet on page 273 to record your answers. Print only one number or symbol in each box. Under each box, fill in the circle that matches the number or symbol you wrote above. **DO NOT FILL IN A CIRCLE UNDER AN UNUSED BOX. DO NOT LEAVE A BOX BLANK IN THE MIDDLE OF AN ANSWER.**

1. A landscape architect drew a plan for a flower bed in a park. The plan is shown.



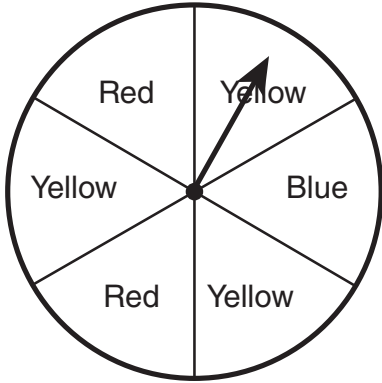
The plan has a scale of $\frac{1}{2}$ inch = 3 feet. What is the actual area of the flower bed, in square feet?

2. In the figure shown, $m\angle WTL = 2(2x - 1)$, $m\angle LTS = 5x + 6$, $m\angle STR = 11x - 4$, and $m\angle QTR = 3x + 7$.



What is the measure, in degrees, of $\angle PTQ$?

3. Sebastian is tossing a coin and spinning a spinner that has 2 red sections, 3 yellow sections, and 1 blue section, all the same size. What is the probability, expressed as a decimal, that Sebastian randomly tosses heads on the coin and spins yellow on the spinner?



4. $-6.7, 5\frac{1}{2}, 3.4, -2\frac{3}{4}$

What is the sum of the numbers shown above, expressed as a decimal?

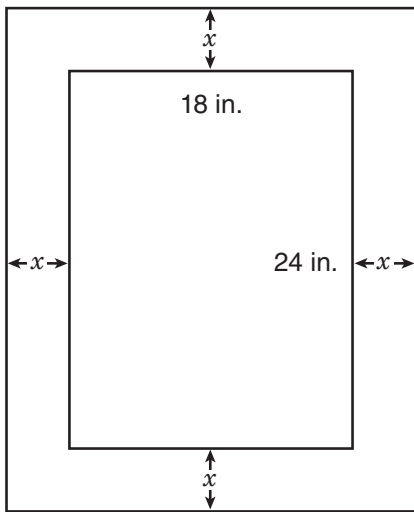
5. Ivan paid \$2.31 in sales tax on an item with an original price of \$42.00. Given the same sales tax rate, an item with an original price of \$64.00 has a sales tax of \$x. What is the value of x? (Express your answer as a decimal.)

6. What is the product of $\frac{3}{8}$ and 0.6, expressed as a decimal?

7. A bookstore manager will randomly select 2 of 9 different recently arrived books to place in a window display. How many possible pairs of selections are there? (The order of the two books in the window display does not matter.)

8. What is $\frac{7}{8}$ in decimal form?

9. Olivia is building a frame for a painting. The painting is 24 inches high and 18 inches wide. She wants the height of the framed painting to be 125% of the height of the painting. The width of the frame around the painting will be the same on all sides, as shown in the diagram. What is x , the width of the frame, in inches?



10. $pt^3 + p^3t$

What is the value of the expression above when $p = 3$ and $t = -2$?

1. (1512) The scale is $\frac{1}{2}$ inch = 3 feet. Use that scale to find the base, b , and height, h , of the actual flower bed.

$$\frac{\frac{1}{2}}{3} = \frac{12}{b}$$

$$\frac{1}{2}b = 36$$

$$b = 72$$

$$\frac{\frac{1}{2}}{3} = \frac{7}{h}$$

$$\frac{1}{2}h = 21$$

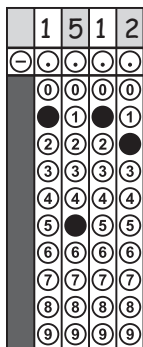
$$h = 42$$

The formula for the area of a triangle is

$$A = \frac{1}{2} \text{ base} \times \text{height.}$$

$$A = \frac{1}{2}bh = \frac{1}{2}(72)(42)$$

$$A = \frac{1}{2}(3,024) = 1,512$$



2. (51) Angles $\angle WTL$ and $\angle QTR$ are congruent because they are vertical angles.

Therefore, $m\angle WTL = m\angle QTR$, so $2(2x - 1) = 3x + 7$.

Distributing 2 gives $4x - 2 = 3x + 7$.

Subtracting $3x$ from both sides gives $x - 2 = 7$.

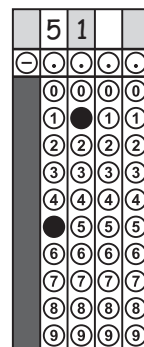
$$x - 2 + 2 = 7 + 2$$

Adding 2 to each side gives $x = 9$.

Angles $\angle PTQ$ and $\angle LTS$ are congruent because they are vertical angles.

Therefore, $m\angle PTQ = m\angle LTS = 5x + 6$.

So $m\angle PTQ = 5(9) + 6 = 45 + 6 = 51$.

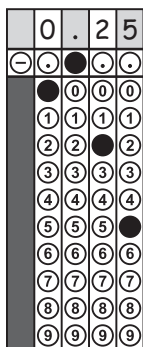


3. (0.25) The probability of tossing heads on the coin is 1 out of 2, which is $\frac{1}{2}$.

The probability of spinning yellow on the spinner is 3 out of 6, which is $\frac{3}{6}$ or $\frac{1}{2}$.

The probability of both of these events occurring is the product of the probabilities.

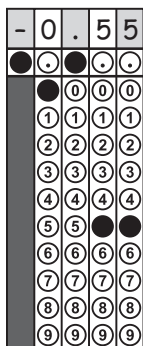
$$\frac{1}{2} \times \frac{1}{2} = 0.25$$



4. (-0.55) Convert the fractions to decimals:

$$-6.7 + 5.5 + 3.4 + (-2.75) =$$

$$-6.7 + 5.5 + 3.4 - 2.75 = -0.55$$

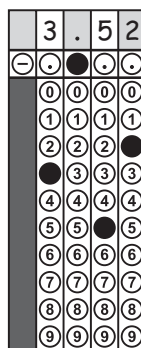


5. (3.52) Set up a proportion to solve.

$$\frac{2.31}{42} = \frac{x}{64}$$

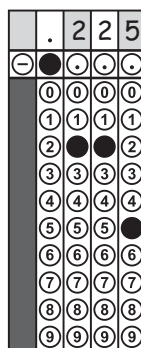
$$(64)\left(\frac{2.31}{42}\right) = x$$

$$3.52 = x$$



6. (0.225) $\frac{3}{8} = 3 \div 8$ 0.375

$$0.375 \times 0.6 = 0.225$$



7. (36) When selecting a pair of books, the order of the books does not matter.

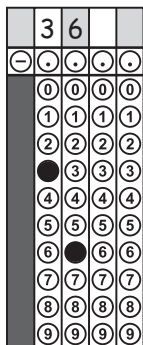
There are 9 books that can be selected for the first book in the pair.

There are 8 books that can be selected for the second book in the pair.

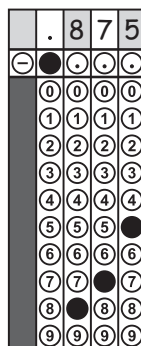
Therefore, there are 72 permutations of books.

However, each pair is repeated twice because the order in which the books were selected does not matter.

Since each pair is represented twice, divide $\frac{72}{2} = 36$ to show there are 36 pairs of books that can be selected.



8. (0.875) $\frac{7}{8} = 7 \div 8 = 0.875$



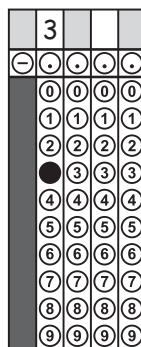
9. (3) The painting is 24 inches high. Olivia wants the height of the frame to be 125% the height of the painting. The width of the frame will be the same on all sides.

Multiply the height of the painting by 125% to find the height of the frame, in inches.

$$24 \times 1.25 = 30$$

Since the height of the painting is already 24 inches, that leaves 6 inches of frame divided by 2 for the top and bottom.

Therefore, x is 3 inches.



10. (-78) Substitute the values of $p(3)$ and $t(-2)$ and solve.

$$pt^3 + p^3t = 3(-2)^3 + 3^3(-2) =$$

$$3(-8) + 27(-2) = -24 - 54 = -78$$

-	7	8		
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0	0
<input type="radio"/>	1	1	1	1
<input type="radio"/>	2	2	2	2
<input type="radio"/>	3	3	3	3
<input type="radio"/>	4	4	4	4
<input type="radio"/>	5	5	5	5
<input type="radio"/>	6	6	6	6
<input checked="" type="radio"/>	7	7	7	7
<input type="radio"/>	8	8	8	8
<input type="radio"/>	9	9	9	9

Answer Key for Grid-In Mathematics

- | | |
|----------|----------|
| 1. 1512 | 6. 0.225 |
| 2. 51 | 7. 36 |
| 3. 0.25 | 8. 0.875 |
| 4. -0.55 | 9. 3 |
| 5. 3.52 | 10. -78 |

2020

NEW YORK CITY PUBLIC SCHOOLS
SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST
GRADE 8



SIDE 1

8

1. **STUDENT STATEMENT:** I am well enough to take this test and complete it. I understand that once I break the seal of the test booklet, I may not be eligible for a make-up test. I am a New York City resident and a Grade 8 student taking a Grade 8 test. I understand that a student who is not a New York City resident, who takes the test more than once in a given school year, or who takes the test at the wrong grade level will be disqualified from acceptance to any of the specialized high schools.

Signature (full name, first name first): _____

2. **TODAY'S DATE:** _____
Month Day Year

3. **DATE OF BIRTH:** _____
Month Day Year

CAREFULLY RECORD YOUR NAME, SCHOOL CHOICES, DATE OF BIRTH, INFORMATION ABOUT THE SCHOOL WHERE YOU ARE NOW ENROLLED, AND STUDENT ID NUMBER. USE A PENCIL ONLY. INCORRECT MARKS MAY DELAY THE SCORING OF YOUR ANSWER SHEET.

4. **FIRST NAME (please print)**
Grid for first name with letters A-Z and circles for marking.

MI
Grid for middle initial with letters A-Z and circles for marking.

LAST NAME (surname) (please print)
Grid for last name with letters A-Z and circles for marking.

5. **CHOICES OF SPECIALIZED HIGH SCHOOLS**
Indicate your school choice in order of preference.
School choices indicated on the answer sheet are final.
Table with schools and 8 choice columns.

6. **DATE OF BIRTH**
Table with months (JAN-DEC) and days (1-31) for marking.

7. **SCHOOL WHERE YOU ARE NOW ENROLLED**
NAME OF SCHOOL
School Code
Grid for school code with letters and numbers.

8. **STUDENT ID NUMBER**
Grid for student ID number with digits 0-9.

9. **BOOKLET LETTER AND NUMBER**
Grid for booklet letter and number with letters A-Q and digits 0-9.



Test Booklet Letter

Test Booklet Number

Student's First Name (please print)

Student's Last Name (please print)

PART 1 ENGLISH LANGUAGE ARTS

- | | | | |
|--------------------|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 16 (E) (F) (G) (H) | 31 (A) (B) (C) (D) | 46 (E) (F) (G) (H) |
| 2 (E) (F) (G) (H) | 17 (A) (B) (C) (D) | 32 (E) (F) (G) (H) | 47 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 18 (E) (F) (G) (H) | 33 (A) (B) (C) (D) | 48 (E) (F) (G) (H) |
| 4 (E) (F) (G) (H) | 19 (A) (B) (C) (D) | 34 (E) (F) (G) (H) | 49 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 20 (E) (F) (G) (H) | 35 (A) (B) (C) (D) | 50 (E) (F) (G) (H) |
| 6 (E) (F) (G) (H) | 21 (A) (B) (C) (D) | 36 (E) (F) (G) (H) | 51 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 22 (E) (F) (G) (H) | 37 (A) (B) (C) (D) | 52 (E) (F) (G) (H) |
| 8 (E) (F) (G) (H) | 23 (A) (B) (C) (D) | 38 (E) (F) (G) (H) | 53 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D) | 24 (E) (F) (G) (H) | 39 (A) (B) (C) (D) | 54 (E) (F) (G) (H) |
| 10 (E) (F) (G) (H) | 25 (A) (B) (C) (D) | 40 (E) (F) (G) (H) | 55 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 26 (E) (F) (G) (H) | 41 (A) (B) (C) (D) | 56 (E) (F) (G) (H) |
| 12 (E) (F) (G) (H) | 27 (A) (B) (C) (D) | 42 (E) (F) (G) (H) | 57 (A) (B) (C) (D) |
| 13 (A) (B) (C) (D) | 28 (E) (F) (G) (H) | 43 (A) (B) (C) (D) | |
| 14 (E) (F) (G) (H) | 29 (A) (B) (C) (D) | 44 (E) (F) (G) (H) | |
| 15 (A) (B) (C) (D) | 30 (E) (F) (G) (H) | 45 (A) (B) (C) (D) | |

PART 2 MATHEMATICS

58	59	60	61	62

- | | | | |
|--------------------|--------------------|---------------------|---------------------|
| 63 (A) (B) (C) (D) | 76 (E) (F) (G) (H) | 89 (A) (B) (C) (D) | 102 (E) (F) (G) (H) |
| 64 (E) (F) (G) (H) | 77 (A) (B) (C) (D) | 90 (E) (F) (G) (H) | 103 (A) (B) (C) (D) |
| 65 (A) (B) (C) (D) | 78 (E) (F) (G) (H) | 91 (A) (B) (C) (D) | 104 (E) (F) (G) (H) |
| 66 (E) (F) (G) (H) | 79 (A) (B) (C) (D) | 92 (E) (F) (G) (H) | 105 (A) (B) (C) (D) |
| 67 (A) (B) (C) (D) | 80 (E) (F) (G) (H) | 93 (A) (B) (C) (D) | 106 (E) (F) (G) (H) |
| 68 (E) (F) (G) (H) | 81 (A) (B) (C) (D) | 94 (E) (F) (G) (H) | 107 (A) (B) (C) (D) |
| 69 (A) (B) (C) (D) | 82 (E) (F) (G) (H) | 95 (A) (B) (C) (D) | 108 (E) (F) (G) (H) |
| 70 (E) (F) (G) (H) | 83 (A) (B) (C) (D) | 96 (E) (F) (G) (H) | 109 (A) (B) (C) (D) |
| 71 (A) (B) (C) (D) | 84 (E) (F) (G) (H) | 97 (A) (B) (C) (D) | 110 (E) (F) (G) (H) |
| 72 (E) (F) (G) (H) | 85 (A) (B) (C) (D) | 98 (E) (F) (G) (H) | 111 (A) (B) (C) (D) |
| 73 (A) (B) (C) (D) | 86 (E) (F) (G) (H) | 99 (A) (B) (C) (D) | 112 (E) (F) (G) (H) |
| 74 (E) (F) (G) (H) | 87 (A) (B) (C) (D) | 100 (E) (F) (G) (H) | 113 (A) (B) (C) (D) |
| 75 (A) (B) (C) (D) | 88 (E) (F) (G) (H) | 101 (A) (B) (C) (D) | 114 (E) (F) (G) (H) |

2020 NEW YORK CITY PUBLIC SCHOOLS

SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST

GRADE 8



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 Month Day Year Month Day Year

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4. FIRST NAME (please print)

A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

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A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

LAST NAME (surname) (please print)

A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

5. CHOICES OF SPECIALIZED HIGH SCHOOLS

Indicate your school choice in order of preference.

- Fill in only one school for each choice.
- You **must** fill in a first choice school.
- Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.	CHOICES					
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice
SCHOOLS						
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. DATE OF BIRTH

Month	Day	Year
JAN	1 11 21	20 0 0
FEB	2 12 22	1 1
MAR	3 13 23	2 2
APR	4 14 24	3 3
MAY	5 15 25	4 4
JUN	6 16 26	5 5
JUL	7 17 27	6 6
AUG	8 18 28	7 7
SEP	9 19 29	8 8
OCT	10 20 30	9 9
NOV	31	
DEC		

7. SCHOOL WHERE YOU ARE NOW ENROLLED

NAME OF SCHOOL _____

School Code _____

0	0	K	0	0	0
1	1	M	1	1	1
2	2	O	2	2	2
3	3	X	3	3	3
4	4	R	4	4	4
5	5	W	5	5	5
6	6		6	6	6
7	7		7	7	7
8	8		8	8	8
9	9		9	9	9

Fill in for private or parochial schools only

8. STUDENT ID NUMBER

0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9

9. BOOKLET LETTER AND NUMBER

A	0	0	0	0	0
B	1	1	1	1	1
C	2	2	2	2	2
D	3	3	3	3	3
E	4	4	4	4	4
F	5	5	5	5	5
G	6	6	6	6	6
H	7	7	7	7	7
I	8	8	8	8	8
J	9	9	9	9	9
K					
L					
M					
N					
O					

NEW YORK CITY PUBLIC SCHOOLS
2020 SPECIALIZED HIGH SCHOOLS ADMISSIONS TEST
GRADE 8



Test Booklet Letter

Test Booklet Number

Student's First Name (please print)

Student's Last Name (please print)

PART 1 ENGLISH LANGUAGE ARTS

- | | | | |
|--------------------|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 16 (E) (F) (G) (H) | 31 (A) (B) (C) (D) | 46 (E) (F) (G) (H) |
| 2 (E) (F) (G) (H) | 17 (A) (B) (C) (D) | 32 (E) (F) (G) (H) | 47 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 18 (E) (F) (G) (H) | 33 (A) (B) (C) (D) | 48 (E) (F) (G) (H) |
| 4 (E) (F) (G) (H) | 19 (A) (B) (C) (D) | 34 (E) (F) (G) (H) | 49 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 20 (E) (F) (G) (H) | 35 (A) (B) (C) (D) | 50 (E) (F) (G) (H) |
| 6 (E) (F) (G) (H) | 21 (A) (B) (C) (D) | 36 (E) (F) (G) (H) | 51 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 22 (E) (F) (G) (H) | 37 (A) (B) (C) (D) | 52 (E) (F) (G) (H) |
| 8 (E) (F) (G) (H) | 23 (A) (B) (C) (D) | 38 (E) (F) (G) (H) | 53 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D) | 24 (E) (F) (G) (H) | 39 (A) (B) (C) (D) | 54 (E) (F) (G) (H) |
| 10 (E) (F) (G) (H) | 25 (A) (B) (C) (D) | 40 (E) (F) (G) (H) | 55 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 26 (E) (F) (G) (H) | 41 (A) (B) (C) (D) | 56 (E) (F) (G) (H) |
| 12 (E) (F) (G) (H) | 27 (A) (B) (C) (D) | 42 (E) (F) (G) (H) | 57 (A) (B) (C) (D) |
| 13 (A) (B) (C) (D) | 28 (E) (F) (G) (H) | 43 (A) (B) (C) (D) | |
| 14 (E) (F) (G) (H) | 29 (A) (B) (C) (D) | 44 (E) (F) (G) (H) | |
| 15 (A) (B) (C) (D) | 30 (E) (F) (G) (H) | 45 (A) (B) (C) (D) | |

PART 2 MATHEMATICS

- | | | | | |
|--------------------|--------------------|---------------------|---------------------|----|
| 58 | 59 | 60 | 61 | 62 |
| 63 (A) (B) (C) (D) | 76 (E) (F) (G) (H) | 89 (A) (B) (C) (D) | 102 (E) (F) (G) (H) | |
| 64 (E) (F) (G) (H) | 77 (A) (B) (C) (D) | 90 (E) (F) (G) (H) | 103 (A) (B) (C) (D) | |
| 65 (A) (B) (C) (D) | 78 (E) (F) (G) (H) | 91 (A) (B) (C) (D) | 104 (E) (F) (G) (H) | |
| 66 (E) (F) (G) (H) | 79 (A) (B) (C) (D) | 92 (E) (F) (G) (H) | 105 (A) (B) (C) (D) | |
| 67 (A) (B) (C) (D) | 80 (E) (F) (G) (H) | 93 (A) (B) (C) (D) | 106 (E) (F) (G) (H) | |
| 68 (E) (F) (G) (H) | 81 (A) (B) (C) (D) | 94 (E) (F) (G) (H) | 107 (A) (B) (C) (D) | |
| 69 (A) (B) (C) (D) | 82 (E) (F) (G) (H) | 95 (A) (B) (C) (D) | 108 (E) (F) (G) (H) | |
| 70 (E) (F) (G) (H) | 83 (A) (B) (C) (D) | 96 (E) (F) (G) (H) | 109 (A) (B) (C) (D) | |
| 71 (A) (B) (C) (D) | 84 (E) (F) (G) (H) | 97 (A) (B) (C) (D) | 110 (E) (F) (G) (H) | |
| 72 (E) (F) (G) (H) | 85 (A) (B) (C) (D) | 98 (E) (F) (G) (H) | 111 (A) (B) (C) (D) | |
| 73 (A) (B) (C) (D) | 86 (E) (F) (G) (H) | 99 (A) (B) (C) (D) | 112 (E) (F) (G) (H) | |
| 74 (E) (F) (G) (H) | 87 (A) (B) (C) (D) | 100 (E) (F) (G) (H) | 113 (A) (B) (C) (D) | |
| 75 (A) (B) (C) (D) | 88 (E) (F) (G) (H) | 101 (A) (B) (C) (D) | 114 (E) (F) (G) (H) | |

