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.

START SHSAT PREP

Identifying Information, continued

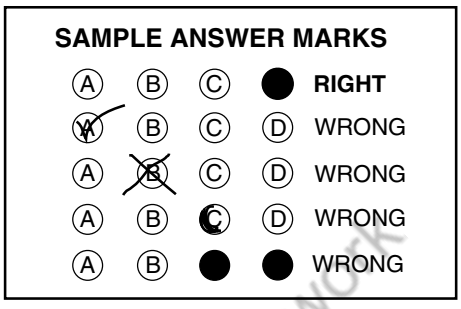
Grid 9: In most cases, Grid 9 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

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.

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

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START SHSAT PREP

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.

START SHSAT PREP

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***.

START SHSAT PREP

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**.

START SHSAT PREP

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

START SHSAT PREP

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

START SHSAT PREP

If you have ever watched someone fall on icy ice, you've seen slipperiness at work. But have you wondered what makes ice slippery, or why skates or skis glide across ice so easily? The answer might seem obvious: ice is smooth. Yet smoothness in itself does not explain slipperiness. Imagine, for example, skating on a smooth surface of glass or sheet metal.

Surprisingly, scientists do not fully understand why ice is slippery. Past explanations of slipperiness have focused on friction and pressure. According to the friction theory, a skate blade rubs across the ice, causing friction. The friction produces heat, melting the ice and creating a slippery, microscopically thin layer of water for the skate to glide on. The friction theory, however, cannot explain why ice is slippery even when someone stands completely motionless, exerting no friction.

The pressure theory holds that pressure from a skate blade melts the ice surface, creating water. Science textbooks typically cite this explanation, but many scientists disagree, claiming that the pressure effect is not great enough to melt the ice. Nor can the pressure theory explain why someone wearing flat-bottomed shoes—which have a greater surface area than skate blades and thus exert less pressure per square inch—can glide across the ice or even go sprawling.

During the 1990s, another theory found acceptance: the thin top layer of ice is liquid, or "liquid-like," regardless of friction or pressure. This notion was first proposed more than 150 years ago by physicist Michael Faraday. Faraday's simple experiment illustrates this property: two ice cubes held against each other will fuse together. This happens, Faraday explained, because liquid on the cubes' surfaces froze solid when the surfaces made contact.

Faraday's hypothesis was overlooked, in part because scientists did not have the means to detect molecular structures. However, technological advances during recent decades allow scientists to measure the thin layer on the surface of the ice. For example, in 1996, a chemist at Lawrence Berkeley Laboratory shot electrons at an ice surface and recorded how they rebounded. The data suggested that the ice surface remained "liquid-like," even at temperatures far below freezing. Scientists speculate that water molecules on the ice surface are always in motion because there is nothing above them to hold them in place. The vibration creates a slippery layer of molecules. According to this interpretation of the Lawrence Berkeley Laboratory experiments, the molecules move only up and down; if they also moved side to side, they would constitute a true liquid. Thus it could be said that people are [illegible] phenomenon of a slippery liquid-like ice, although ice is [illegible] example. Lead crystals and even diamond crystals, made of carbon, also show this property under certain temperature and pressure conditions.

45. Which of the following best tells what this passage is about?

A. why ice surfaces are liquid-like
B. how ice changes from a solid to a liquid
C. answers to the question of what makes ice slippery
D. the discoveries of Michael Faraday
E. the processes of freezing and melting

CONTINUE ON 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.

START SHSAT PREP

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.

If you have ever watched someone fall on the ice, you've seen slipperiness at work. But have you wondered what makes ice slippery, or why skates or skis glide across ice so easily? The answer might seem obvious: ice is smooth. Yet smoothness in itself does not explain slipperiness. Imagine, for example, skating on a smooth surface of glass or sheet metal.

Surprisingly, scientists do not fully understand why ice is slippery. Past explanations of slipperiness have focused on friction and pressure. According to the friction theory, a skate blade rubs across the ice, causing friction. The friction produces heat, melting the ice and creating a slippery, microscopically thin layer of water for the skate to glide on. The friction theory, however, cannot explain why ice is slippery even when [illegible] motionless, [illegible] friction.

The pressure [illegible] from a ska[illegible] creating a slippery layer of water. The water refreezes when the pressure is lifted. Science textbooks typically cite this explanation, but many scientists disagree, claiming that the pressure effect is not great enough to melt the ice. Nor can the pressure theory explain why someone wearing flat-bottomed shoes—which have a greater surface area than skate blades and thus exert less pressure per square inch—can glide across the ice or even go sprawling.

During the 1990s, another theory found acceptance: the thin top layer of ice is liquid, or "liquid-like," regardless of friction or pressure. This notion was first proposed more than 150 years ago by physicist Michael Faraday. Faraday's simple experiment illustrates this property: two ice cubes held against each other will fuse together. This happens, Faraday explained, because liquid on the cubes' surfaces froze solid when the surfaces made contact.

Faraday's hypothesis was overlooked, in part because scientists did not have the means to detect molecular structures. However, technological advances during recent decades allow scientists to measure the thin layer on the surface of the ice. For example, in 1996, a chemist at Lawrence Berkeley Laboratory shot electrons at an ice surface and recorded how they rebounded. The data suggested that the ice surface remained "liquid-like," even at temperatures far below freezing. Scientists speculate that water molecules on the ice surface are always in motion because there is nothing above them to hold them in place. The vibration creates a slippery layer of molecules. According to this interpretation of the Lawrence Berkeley Laboratory experiments, the molecules move only up and down; if they also moved side to side, they [illegible] a true [illegible] skating on wildly vibrating molecules.

The phenomenon of a slippery liquid-like surface is not limited to ice, although ice is the most common example. Lead crystals and even diamond crystals, made of carbon, also show this property under certain temperature and pressure conditions.

45. Which of the following best tells what this passage is about?

- **A.** why ice surfaces are liquid-like
- **B.** how ice changes from a solid to a liquid
- **C.** answers to the question of what makes ice slippery
- **D.** the discoveries of Michael Faraday
- **E.** the processes of freezing and melting

CONTINUE ON TO THE NEXT PAGE ▶

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.

CONTINUE TO THE NEXT PAGE ►

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	Yvetta 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.

START SHSAT PREP

5 Reasons Physical Books Might Be Better Than E-Books

by Shaunacy Ferro

1 Though e-book[1] 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 iPads[3] 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 Kindle[4] 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-stop[5]

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[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

START SHSAT PREP

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 LED[6] 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.

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[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.

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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.

START SHSAT PREP

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,
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.
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.

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,
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;
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

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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

START SHSAT PREP

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.

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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 legislation[1] 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.

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[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 method[2] 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

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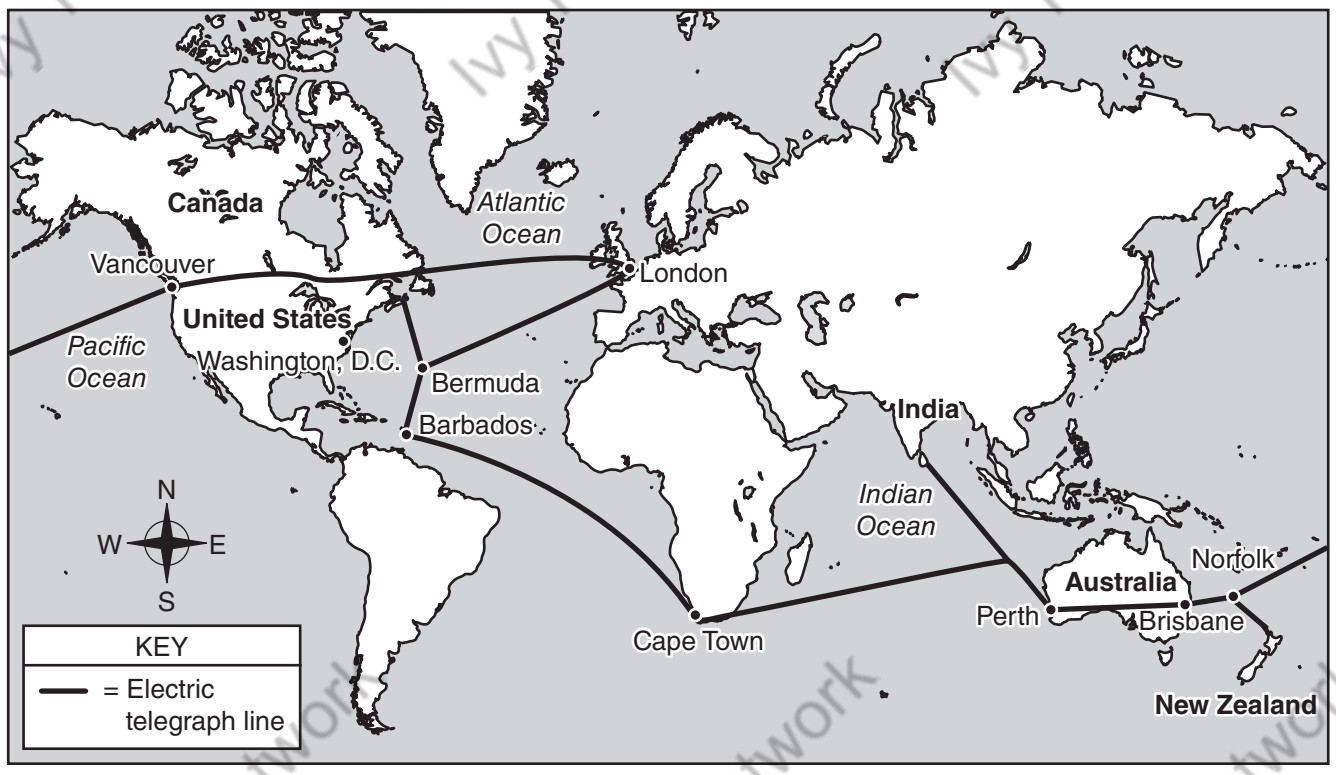
[2]**dots-and-dashes method:** the short and long pulses of Morse code that are sent and received by telegraph operators

START SHSAT PREP

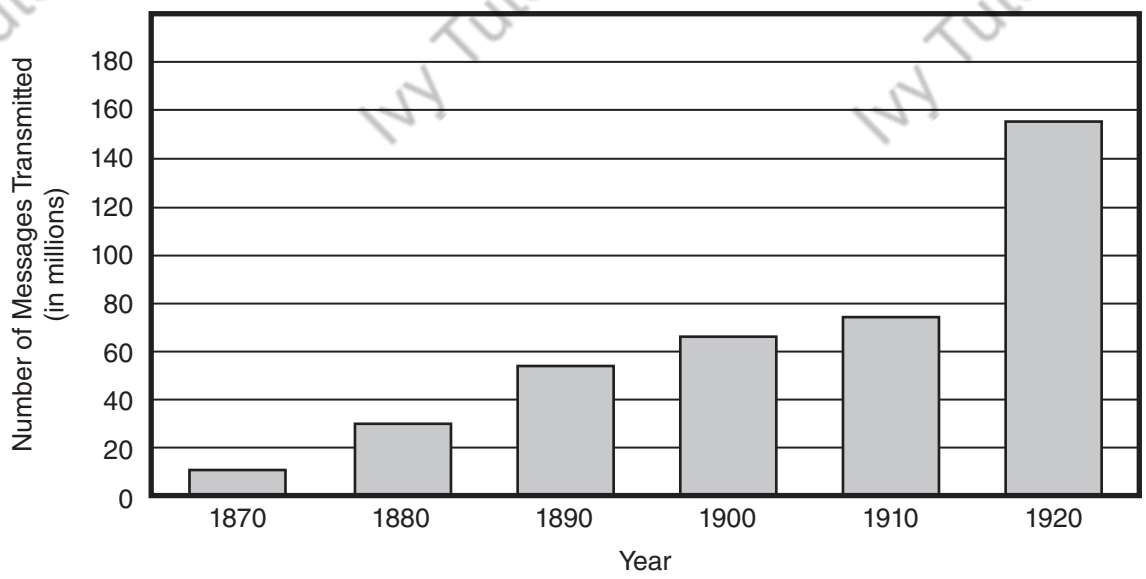
FORM A

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.

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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.

START SHSAT PREP

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 ►

START SHSAT PREP

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:

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

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?

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.)

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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?

START SHSAT PREP

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 $\square$?

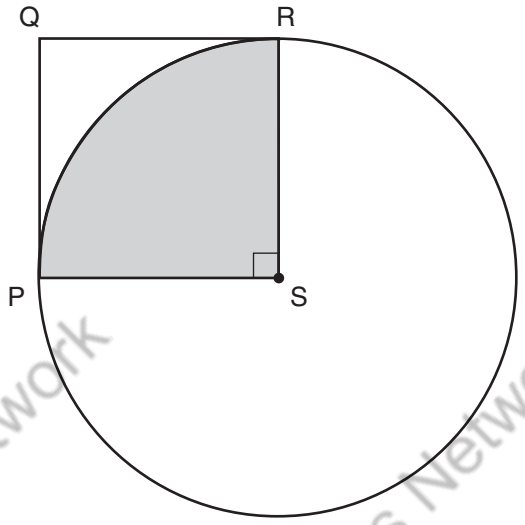
E. y

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

START SHSAT PREP

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

START SHSAT PREP

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

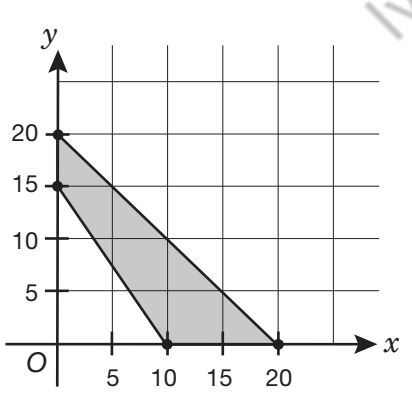
B. $0 \leq x \leq 2\frac{1}{4}$

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

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

START SHSAT PREP

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?

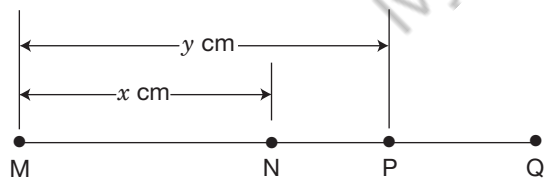
E. x
F. $2x$
G. $2x - 2$
H. $2x - 4$

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

START SHSAT PREP

82.



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

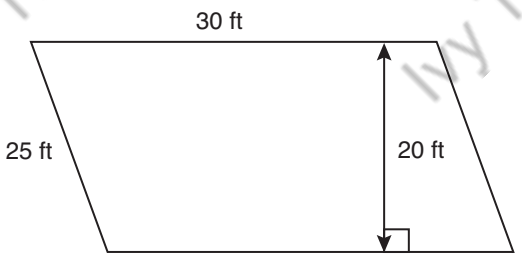
E. $\overline{PQ}$

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

START SHSAT PREP

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:

$$\left|(-8) - 12 + (-17) - (-31)\right| - |24|$$

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?

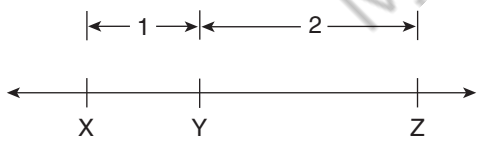
A. 18%

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?

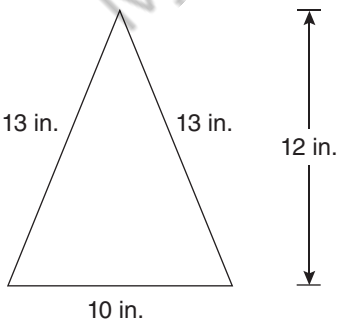
A. 7%

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%

START SHSAT PREP

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

START SHSAT PREP

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. $7\frac{1}{6}$

START SHSAT PREP

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

START SHSAT PREP

FORM A 93 CONTINUE ON TO THE NEXT PAGE ►