Sample Test, Form B
Part 1 — Verbal

Suggested Time — 75 Minutes

45 QUESTIONS

Scrambled Paragraphs

PARAGRAPHS 1-5

DIRECTIONS: In this section, arrange each group of sentences to create the best paragraph. The first sentence for each paragraph is given; the remaining five sentences are listed in random order. Choose the order for these five sentences that will create the **best** paragraph, one that is well-organized, logical, and grammatically correct. Each correctly ordered paragraph is worth **double** the value of a question in any other section of the test. No credit will be given for responses that are only partially correct.

To keep track of your sentence order, use the blanks to the left of the sentences. For example, write "2" next to the sentence you think follows the first sentence, write "3" next to the sentence you think follows "2," and so on. You may change these numbers if you decide on a different order. When you are satisfied with your sentence order, mark your choices on your answer sheet.

Paragraph 1

Tycho Brahe, a seventeenth-century Danish astronomer, is more famous for his odd and arrogant personality than for any contribution he made to our knowledge of the stars and planets.

_____ **Q.** That discovery was made by his assistant, Johannes Kepler, who had been denied full access to Brahe's data until after Brahe's death.

_____ **R.** The disagreement turned into a sword fight, and part of Brahe's nose was sliced off.

_____ **S.** As a student, he got into an argument with another student about who was the better mathematician.

_____ **T.** He made a replacement nose for himself out of an alloy of gold and silver, which he reportedly glued to his face.

_____ **U.** Later in his life, his arrogance may have kept him from playing a part in one of the greatest astronomical discoveries in history—the elliptical orbits of the planets around the sun.

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Paragraph 2

Stephen Crane was 24 years old when his classic Civil War novel *The Red Badge of Courage* was published in 1895.

_____ **Q.** Unfortunately, his first novel, *Maggie: A Girl of the Streets*, which chronicled life among the poor in New York City's Bowery slums, was not as successful.

_____ **R.** That novel, his second, brought him almost overnight international celebrity status.

_____ **S.** One story says that, in an attempt to recoup his losses, Crane paid people to ride the Manhattan El train carrying copies of the book.

_____ **T.** *Maggie* was self-published by Crane when he was only 21, using money borrowed from his brother.

_____ **U.** The loan became a loss—the gritty social realism of *Maggie* earned Crane praise from critics, but he probably gave away more copies than he sold.

Paragraph 3

Macaws, a type of parrot found in South America, are among the largest and most beautiful birds in the world.

_____ **Q.** Scientists believe that the birds may eat the clay in order to counteract poisons contained in some of these fruit seeds.

_____ **R.** The birds do not appear to eat clay to satisfy hunger; they ingest it even when fruit seeds, their favorite foods, are available.

_____ **S.** Like many other parrot species, they are very intelligent as well, yet some of their behaviors have baffled scientists.

_____ **T.** This theory is supported by the fact that the birds eat more clay in the dry season, when less-poisonous food is scarce.

_____ **U.** For example, macaws regularly flock to riverbanks to eat the clay found in river mud.

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Paragraph 4

In the colder regions of the Northern Hemisphere, an energy-efficient house should have most of its windows facing south.

_____ **Q.** The reason that architects and builders want this "southern exposure" is related to the position of the sun in the sky.

_____ **R.** To take advantage of this, during the winter the south-facing windows should be uncovered during the day, allowing sunlight—and heat—to penetrate directly into the living space.

_____ **S.** Though the sun always rises in the east and sets in the west, in the Northern Hemisphere the sun is permanently situated in the southern portion of the sky.

_____ **T.** In these ways, the sun's warmth is retained in the house, a form of passive solar heating.

_____ **U.** At night, when temperatures go down, the windows should be covered by curtains or other insulating materials to prevent the heat from escaping.

Paragraph 5

To the earliest European traders, Africa seemed to be loosely organized into tribal societies, without any great centers of wealth or learning.

_____ **Q.** He described a thriving metropolis with great universities and dozens of private libraries.

_____ **R.** Unfortunately, by the nineteenth century raids by neighboring tribes had made Timbuktu a shadow of its former self.

_____ **S.** This impression began to change in the fifteenth century, as Europeans traveled inland into western Africa.

_____ **T.** In 1470, an Italian merchant named Benedetto Dei traveled to Timbuktu and confirmed these stories.

_____ **U.** The travelers told tales of an enormous city, known as Timbuktu, on the southern edge of the Sahara Desert, where the markets were crowded with goods and gold was bought and sold.

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START SHSAT PREP

LOGICAL REASONING

QUESTIONS 11-20

DIRECTIONS: Read the information given and choose the **best** answer to each question. Base your answer **only on the information given.**

In a logical reasoning test, certain words must be read with caution. For example, "The red house is **between** the yellow and blue houses" does not necessarily mean "The red house is **between and next to** the yellow and blue houses"; one or more other houses may separate the red house from the yellow house or from the blue house. This precaution also applies to words such as **above, below, before, after, ahead of,** and **behind.**

11. A star named Quil is the center of four orbiting planets, which are named Dorb, Needer, Sly, and Tyne. Each planet travels in a separate orbit, and each orbit is a circle. All four orbits lie in one plane. The farther a planet is from Quil, the faster it travels.

1) Planet Needer is closest to Quil.
2) The orbit of planet Dorb is next to the orbit of Sly.
3) The orbit of Sly is farthest from the orbit of Needer.

Which planet travels fastest?

A. Needer
B. Dorb
C. Sly
D. Tyne
E. Cannot be determined from the information given.

12. Any student who receives a grade lower than B- on the February report card is not permitted to play on a sports team in the spring.

Based only on the information above, which of the following **must** be true?

F. Every student who received all A's on the February report card plays on a sports team in the spring.
G. No student who plays on a sports team in the spring received a grade of C+ or lower on the February report card.
H. The best athletes also get the highest grades.
J. Students who do not play on sports teams in the spring received higher grades in February than those who do.
K. Students who play on sports teams spend a lot of time studying.

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Questions 17 and 18 refer to the following information.

In the code below, (1) each letter always represents the same word, (2) each word is represented by only one letter, and (3) in any given sentence, the position of a letter is **never** the same as that of the word it represents.

L	W	Q	P	R	means
"Marie	eats	pizza	and	chocolate."	

U	Z	R	V	N	means
"Sean	likes	wings	and	soda."	

L	V	P	T	R	means
"Jackson	eats	wings	and	pizza."	

N	Y	R	X	W	means
"Irena	likes	chocolate	and	juice."	

17. Which letter represents the word "juice"?

A. N
B. Y
C. X
D. W
E. Cannot be determined from the information given.

18. Which word is represented by the letter U?

F. Sean
G. likes
H. wings
J. and
K. soda

19. Most people in the Skydiving Club are not afraid of heights. Everyone in the Skydiving Club makes three parachute jumps a month.

Based only on the information above, which of the following statements **must** be true?

A. Skydivers are less afraid of heights than are non-skydivers.
B. A person must make three parachute jumps a month in order to join the Skydiving Club.
C. Some people who are afraid of heights make three parachute jumps a month.
D. Most people who are not afraid of heights are in the Skydiving Club.
E. Every skydiver makes at least one parachute jump a month.

20. Six students stood in a line. Their names are Larnell, Masha, Nikia, Pedro, Ryan, and Sara, in that order.

1) The two students that wear glasses are immediately next to one another.
2) Three students are wearing school T-shirts.
3) None of the students wearing a school T-shirt is next to each other.
4) No student is wearing both glasses and a school T-shirt.

Based only on the information above, which of the following **must** be true?

F. Pedro and Ryan are wearing glasses.
G. Nikia is wearing a school T-shirt.
H. Pedro is wearing a school T-shirt.
J. Larnell and Sara are wearing school T-shirts.
K. Either Masha or Nikia is wearing a school T-shirt, but it is not possible to determine which one.

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START SHSAT PREP

READING

QUESTIONS 21-50

DIRECTIONS: Read each passage below and answer the questions following it. Base your answers **on information contained only in the passage.** You may reread a passage if you need to. Mark the **best** answer for each question.

Most people—if they think about bubbles, suds, and lather at all—consider them to be fairly ordinary physical occurrences. But scientists have been studying foams, particularly aqueous (watery) foams, for more than 300 years. The phenomenon of foam creation is quite complex, and only recently have scientists begun to understand how foams are formed.

Aqueous foam is produced when a gas—air, for example—is dispersed within a liquid, such as water. However, a pure liquid produces an unstable froth, so a third ingredient must be added to stabilize the froth into foam. The most common stabilizers, or foaming agents, are soaps and proteins. These stabilizers are also called surfactants, or surface-active agents. Surfactant molecules chemically disturb the surface of the liquid, lowering its surface tension and creating a foam of bubbles, each encased in a watery film. The dispersing gas continues to build bubbles until the liquid is partially or completely converted to foam, with a surface area far greater than that of the original volume of liquid.

Aqueous foams have a characteristic life cycle. During the first stage, the liquid content is high and the foam is characterized by spherical bubbles of nearly uniform size, each with a relatively thick outer film of liquid. As the foam ages, the liquid drains away, and the foam "dries." The bubbles are no longer spherical; they have become polyhedrons with multiple flat surfaces. Eventually, outside forces—usually evaporation or vibration—cause the film walls of the bubbles to collapse, and the foam disappears.

The aqueous foams of shampoo, bubble bath, and dishpan suds were developed largely to satisfy consumer expectations. Protein foaming agents create whipped cream and marshmallows. Still other foams have important practical applications. Perhaps best known of these is the foam used in fire extinguishers. It puts out oil or gasoline fires by smothering them in a blanket of foam made of carbon dioxide bubbles stabilized by a protein-based surfactant. In general, these extinguishers have the advantage of minimizing the extensive water damage caused by more traditional fire-fighting methods.

Less well-known are the applications of foam technology to the recovery of oil from deep wells. Water is often present along with this energy-producing resource, and the water must be removed before the well can become productive. Drillers introduce a gas, along with an appropriate surfactant, into the well, and then pump out the resulting foam. Thus the water is removed, leaving a more productive oil well.

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

A. the life cycle of an aqueous foam
B. how foam was discovered
C. industrial uses of aqueous foams
D. differences between surfactants and foaming agents
E. the formation and uses of aqueous foams

START SHSAT PREP

Most movies about spies and undercover agents feature fascinating special equipment. Many of these gadgets exist only in the imaginations of script writers, but others are actually used in espionage activities. One device with a surprisingly long and colorful history, both in and out of the cloak-and-dagger world, is the concealed camera.

In the late nineteenth century, "detective cameras" were popular with amateur photographers who wanted to take snapshots of unsuspecting people on the street. The camera was usually carried in plain view. Its disguise was simple: it was a plain box resembling a large and rather heavy parcel or a piece of luggage, with no external lens or controls. When people caught on to the deception, though, designers began hiding cameras in other objects, ranging from hats and books to purses and pocket watches. One concealed camera even looked like an ordinary camera, but had mirrors that allowed users to take photographs at a right angle to the direction of whatever the photographer seemed to be viewing.

Although most early spy cameras were meant to be used on the ground, cameras have been hidden in the sky almost from the beginning of photography. In World War I, both sides realized the strategic value of taking aerial photographs of enemy territory from the newly invented airplane. To spy more discreetly, without the use of airplanes, the Germans attached cameras to homing pigeons and sent them over French army positions. Timers were set to trigger the cameras when the pigeons were expected to be flying over their targets. That particular attempt proved impractical, but the idea behind it did not: aerial photography became a staple of World War II.

In the mid-twentieth century, a new era of spying with cameras began under the Cold War. This was a period of worldwide tension and competition between the Communist world, led by the Soviet Union, and the Western world, represented by the United States and its allies. The conflict was expressed through propaganda, arms races, and especially espionage. During the Cold War, both sides competed to develop new technologies to use photography in spying. Sophisticated concealed cameras were put in matchboxes, pens, rings, cigarette lighters, makeup cases, guns, and even hidden in clothing, with the lens concealed in a button. Almost any object that could be carried without attracting attention was probably made into a camera and carried by an undercover agent. Cameras were also hidden in furniture and office machines such as copiers, which took photos of every document that was copied. The development of the long-range telephoto lens even allowed spies to take clear photos from a distance, such as across the street from an embassy.

Today, space has proven to be the ultimate location for hidden cameras, as satellite-mounted cameras can produce highly detailed photographs of objects anywhere on earth.

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

- **A.** the role of hidden cameras in national security
- **B.** the problems associated with hidden cameras
- **C.** the mechanics of the "detective camera"
- **D.** historical information about the concealed camera
- **E.** how cameras are mounted in satellites

28. According to the passage, "detective cameras" were popular with

- **F.** spies.
- **G.** detectives.
- **H.** the German army.
- **J.** professional photographers.
- **K.** amateur photographers.

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29. What was the original purpose of the early detective cameras?

A. to resemble an ordinary object such as a box
B. to deceive people into thinking that the box contained a camera
C. to use in espionage activites by secret agents
D. to take pictures without the subjects' knowledge
E. to be carried by homing pigeons for surveillance

30. The camera with mirrors (lines 21-25) allowed the photographer to

F. conceal the camera in a hat or pocket watch.
G. take a picture with no external lens or controls.
H. disguise the camera as a simple box.
J. take a picture of one scene while appearing to take a picture of another.
K. determine whether other photographers were using detective cameras.

31. Photographers stopped using the box-type "detective camera" because

A. people were no longer deceived by them.
B. the cameras could not be used with external lenses.
C. they wanted to avoid being mistaken for secret agents.
D. professional photographers refused to use them.
E. espionage was conducted during the war.

32. What was the "idea" referred to in line 40?

F. taking photographs without permission
G. taking photographs from above
H. disguising a camera as something else
J. using cameras in wartime
K. attaching cameras to homing pigeons

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START SHSAT PREP

One of the books that has done the most to alert the world to the dangers of environmental degradation was George Perkins Marsh's *Man and Nature*. Its message—that Western society was in the process of causing irreparable harm to the environment—greatly influenced ecologists during the beginning of the modern environmentalist movement in the 1960s. Marsh was not, however, part of this movement. Surprisingly, *Man and Nature* was first published in 1864.

Marsh first observed the environmentally destructive effects of human activities while growing up in Vermont in the early nineteenth century. The heavy demand for firewood had depleted the forests, and extensive sheep grazing had stripped the land. The result was flooding and soil erosion. Furthermore, streams were fouled by wastes dumped from numerous mills and dye houses.

Much later in his life, after careers in law, business, farming, and politics, Marsh served as ambassador to Italy. There he noticed land abuse similar to what he had seen in Vermont. Overgrazing and forest mismanagement had rendered desolate areas that had been productive farmland since the days of the Roman Empire. Marsh attributed this to what he called ". . . man's ignorant disregard for the laws of nature."

In Italy, Marsh began to organize his observations and theories. He wrote in a way intended to educate readers about the impact of industrial and agricultural practices on the environment. In *Man and Nature*, he evaluated the important relationships between animals and plants, discussed forestry practices in great detail, and analyzed the ways natural water supplies are affected by human use.

Man and Nature challenged the popular belief that nature can heal any damage that people inflicted upon it. Marsh argued that human beings may use and enjoy, but not destroy, the riches of the earth. Furthermore, he asserted that everything in nature is significant, and that even the tiniest organism affects the fragile environmental balance. His belief that drastic alteration of this balance would be dangerous is now accepted as a fundamental principle of modern environmental science.

Although he pointed out environmental damage caused by irresponsible human activities, Marsh did not oppose every human alteration to the environment. To him, the goal was proper management, not a return to wilderness conditions. People should consider the consequences of their actions, he wrote, and become "co-worker[s] with nature." Marsh praised the Suez Canal, the human-made waterway between the Mediterranean Sea and the Gulf of Aden, as "the greatest and most truly cosmopolite physical improvement ever undertaken by man." He believed that the advantages of the canal—improved transportation and commerce—would outweigh any environmental damage. Yet he also warned of possible unintended consequences, such as destructive plants and animals spreading from one body of water to the other.

Marsh was considered a radical thinker during his lifetime. By the late nineteenth century, however, his writings, along with those of John Muir, Henry David Thoreau, and others, had inspired what became known as the conservation movement. The conservationists of that time sought to educate the public that wilderness areas were worth preserving, and they were responsible for creating the National Park Service and the National Forest Service.

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The British novelist Charles Dickens is well known for the colorful and eccentric characters he created in his many novels. But one of his books, *David Copperfield*, seems to have a great deal to do with fact as well as fiction. After attempting to write his autobiography, Dickens abandoned the project and began to work on a novel, the plot of which was loosely based on his own boyhood experiences. Apparently, it was easier for him to weave the events of his own life into the fiction of *David Copperfield* than to write about them in nonfiction.

Some of Dickens' most troubling memories involved a job he held in 1824 as a 12-year-old child. Because his family was deeply in debt, he was forced to quit school and go to work in a London factory, pasting labels on pots of shoe polish. Young Charles lived in a boardinghouse, using his meager wages to support himself and to help pay his family's debts. He worked in the dreary, run-down factory six days a week from 8:00 a.m. to 8:00 p.m. Such long hours were not unusual at the time, for children or adults, but Dickens was miserable during the entire four months he spent working at the factory.

Even when the family finances improved, the boy continued to work at the factory until his father quarreled with Dickens' boss, who promptly dismissed the son. Charles was upset at being fired, but relieved to be out of the factory. Thus he felt betrayed when his mother, anxious for the boy's weekly wage, succeeded in making peace and getting Dickens' job back for him. The father, however, now sided with his son and the boy was sent back to school. "I know how these things have worked together to make me what I am," Dickens later wrote, but he never forgot that his mother was eager for him to return to work.

As an adult, Dickens always remembered the shame and humiliation he felt during those months at the factory. For years afterward, whenever in London, he could not go near the sites of the factory and boardinghouse, going out of his way to avoid those painful reminders of his past. In fact, Dickens never told his wife and children about his childhood work experience. It was only after his death that they heard of it from a family friend whom Dickens had confided in.

Instead, Dickens expressed his feelings by giving his fictional "other self," David Copperfield, a job similar to the one he had so hated. In the novel, ten-year-old David is forced by his harsh stepfather to work as a bottle washer in a factory. Young David, who "suffered exquisitely" as a child manual laborer, was apparently Dickens' way of dealing with his own past. *David Copperfield* was to become Dickens' most popular novel, and Dickens himself called it his "favorite child."

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

- **A.** Dickens' childhood dreams and desires
- **B.** Dickens' autobiography written while he was a child
- **C.** Dickens' childhood relationship with his parents
- **D.** the autobiographical basis for Dickens' *David Copperfield*
- **E.** the many characters created by Dickens for *David Copperfield*

40. When did Dickens begin writing *David Copperfield*?

- **F.** after giving up work on his own life story
- **G.** shortly after he worked at the shoe polish factory
- **H.** when he decided to resume his long-delayed schooling
- **J.** after revisiting the shoe polish factory as an adult
- **K.** when he no longer felt ashamed about his childhood

41. Which of the following is the most reasonable inference about Dickens as a child?

A. He believed that children should learn to work and support themselves.
B. He was dreamy and imaginative.
C. He planned to be a factory owner when he grew up.
D. He thought that all work was worthwhile if done well.
E. He preferred attending school to working in a factory.

42. Which of the following is the primary reason that Dickens wrote *David Copperfield*?

F. He needed money from the novel to help pay his debts.
G. It was too difficult for him to write about his memories directly in an autobiography.
H. He wanted his own children to know of his work in the factory.
J. His autobiography had not been well accepted by the public.
K. He wanted to demonstrate that his childhood job had helped him succeed in later life.

43. What can be concluded about the relationship between Dickens and his mother as described in the third paragraph?

A. He never saw her again after he left to work in the shoe polish factory.
B. He was grateful that she got his job back for him.
C. He resented her for putting the need for his wages above his own happiness.
D. He never included her in any of his novels.
E. He had trouble remembering her role in the unpleasant events of his childhood.

44. What most directly enabled Charles Dickens to return to school?

F. a downturn in the family's finances
G. his father's quarrel with the factory owner
H. getting fired from the factory
J. his mother's desire for his weekly wage
K. his father's intervention

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The African country of Zimbabwe took its name from the Shona word meaning "stone enclosures" or "venerated houses." In fact, dozens of stone ruins are today scattered throughout Zimbabwe and other areas in southeastern Africa. One of these ruins, known as "Great Zimbabwe," was once a fabled city that inspired tales that circulated throughout Europe. Where was this remarkable city, and who had built it? For centuries the mystery occupied the minds of explorers and treasure-seekers.

The first reports to Europeans of Great Zimbabwe were spread a thousand years ago by Arab traders sailing between the Middle East and the east coast of Africa. They told of the fabulous wealth of a mysterious stone city in the African interior. In their tales, that city became associated with their understanding of Middle Eastern history—with the Queen of Sheba, King Solomon, and his legendary gold mines, long since lost to the world. By the sixteenth century, Portuguese explorers regularly visited East Africa, searching for "King Solomon's gold," but they never found Great Zimbabwe. In 1552, a Portuguese historian, João de Barros, recorded a story told by the Arabs about a city with a "square fortress of masonry within and without, built of stones of marvelous size, and there appears to be no mortar joining them."

In fact, Great Zimbabwe **was** a marvel. In one area, a massive wall, over thirty feet high and twenty feet thick, created a great enclosure. Another area contained a fortress-like series of walls, corridors, and steps built into the bluff above. Throughout the city, each stone was precisely fitted to the others without the use of mortar.

In the 1870s, a German geologist, Karl Mauch, was the first European to see Great Zimbabwe, by then in ruins. Mauch realized that he had "rediscovered" the fabled city from de Barros's story. He jumped to the conclusion that Great Zimbabwe had been built by the Queen of Sheba. British authorities sent a British journalist, Richard Hall, to Great Zimbabwe to investigate Mauch's report. Archaeology was still in its infancy, and Hall, convinced that the structures had been built by ancient people from the Middle East, dug up and discarded archaeological deposits that would have revealed much about the true history of Great Zimbabwe. Later European excavations destroyed even more valuable evidence.

In the twentieth century, after excavating areas that had not been disturbed, David Randall-MacIver, a Scottish Egyptologist, and Gertrude Caton-Thompson, an English archaeologist, concluded that the ruins were unmistakably African in origin. Great Zimbabwe was most likely built during the fourteenth or fifteenth century by the ancestors of the present-day Shona people. Recent carbon-14 dating supports their conclusion. Great Zimbabwe was once home to an estimated 20,000 people, the center of a great Shona kingdom. Wealthy Shona kings traded their ivory and gold in coastal towns for other goods, thus accounting for the discovery of beads and other foreign wares in the ruins.

One mystery of Great Zimbabwe had been solved. Another mystery remains: why was the settlement at Great Zimbabwe abandoned, leaving the magnificent stone architecture to fall into ruins?

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

A. a brief history of the nation of Zimbabwe
B. inaccuracies in the recording of African history
C. a comparison of Great Zimbabwe with other African archaeological sites
D. the true story of the Great Zimbabwe ruins
E. how Karl Mauch discovered Great Zimbabwe

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PART 2 — MATHEMATICS

Suggested Time — 75 Minutes

50 QUESTIONS

GENERAL INSTRUCTIONS

Solve each problem. Select the **best** answer from the choices given. Mark the letter of your answer on the answer sheet. You can do your figuring in the test booklet or on paper provided by the proctor. **DO NOT MAKE ANY MARKS ON YOUR ANSWER SHEET OTHER THAN FILLING IN YOUR ANSWER CHOICES.**

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 figured out from the information given.

(3) Assume that a diagram is in one plane unless the problem specifically states that it is not.

(4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, (on a graph) lines that appear to be parallel can be assumed to be parallel; likewise for concurrent lines, straight lines, collinear points, right angles, etc.

(5) Reduce all fractions to lowest terms.

M89-468C

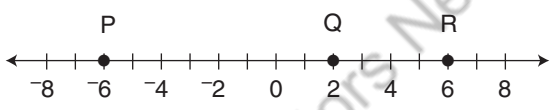
51. $100(2 + 0.1)^2 - 100 =$

A. 101
B. 141
C. 200
D. 301
E. 341

52. Jack scored a mean of 15 points per game in his first 3 basketball games. In his 4th game, he scored 27 points. What was Jack's mean score for the 4 games?

F. 15
G. 16
H. 17
J. 18
K. 21

53.



How many units is it from the midpoint of $\overline{PQ}$ to the midpoint of $\overline{QR}$?

A. 2
B. 4
C. 6
D. 8
E. 10

54. Each child in a certain class is required to have school supplies of 1 notebook and 2 pencils. One notebook costs \$1.09 and one pencil costs \$0.59. With \$15, what is the maximum number of children that can be provided with the required supplies? (Assume no tax.)

F. 6
G. 7
H. 8
J. 9
K. 12

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55. What time will it be 46 hours after 9:30 p.m. on Friday?

A. 7:30 p.m. Saturday
B. 7:30 a.m. Sunday
C. 6:30 p.m. Sunday
D. 7:30 p.m. Sunday
E. 9:30 p.m. Sunday

56. Judy is n years older than Carmen and twice as old as Frances. If Frances is 15, how old is Carmen?

F. 30
G. $15 + n$
H. $15 + 2n$
J. $15 - n$
K. $30 - n$

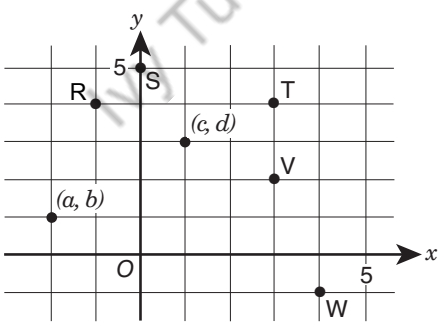
57. If $0.00102 = \frac{102}{N}$, what is the value of N?

A. 10,000
B. 100,000
C. 1,000,000
D. 100,000,000
E. 1,000,000,000

58. On a scale drawing, a distance of 1 foot is represented by a segment 0.25 inch in length. How long must a segment on the scale drawing be to represent a 36-inch distance?

F. 0.25 in.
G. 0.75 in.
H. 3 in.
J. 9 in.
K. 144 in.

59.



The figure above is drawn to scale. Which point best shows the location of $(c + a, d + b)$?

A. R
B. S
C. T
D. V
E. W

60. $\frac{(-51)^2}{17^3} =$

F. -2

G. $-\frac{1}{17}$

H. $\frac{9}{17}$

J. $\frac{16}{17}$

K. 2

61. 1 dollar = 7 lorgs
1 dollar = 0.5 dalts

Kwamme 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? (Assume there are no exchange fees.)

A. \$28
B. \$52
C. \$182
D. \$282
E. \$988

START SHSAT PREP

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68. A prom dress originally priced at $450 is on sale for $\frac{1}{3}$ off the original price. In addition, Alia has a coupon for 10% off the discounted price. If there is a 6% sales tax on the final price of the dress, what would Alia's total cost be?

F. $111.30
G. $143.10
H. $270.30
J. $286.20
K. $297.00

69. How many different two-digit numbers can be formed from the digits 7, 8, 9 if the numbers must be even and no digit can be repeated?

A. 0
B. 1
C. 2
D. 3
E. 6

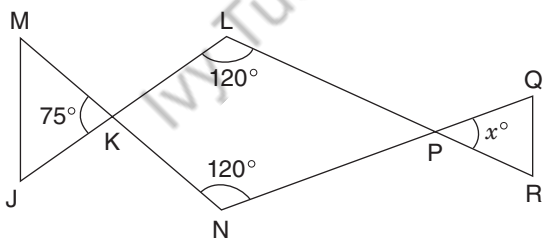
70. A group of mountain climbers started the day at an elevation of 125 feet below sea level. At the end of the day, they camped at 5,348 feet above sea level. What was the climbers' elevation gain for the day?

F. 5,223 ft
G. 5,373 ft
H. 5,377 ft
J. 5,463 ft
K. 5,473 ft

71. How many integers are between $\frac{5}{2}$ and $\frac{20}{3}$?

A. 3
B. 4
C. 5
D. 10
E. 15

72.



In the figure above, $\overline{JKL}$, $\overline{MKN}$, $\overline{NPQ}$, and $\overline{LPR}$ are straight line segments. What is the value of x?

F. 25
G. 45
H. 50
J. 60
K. 75

73.

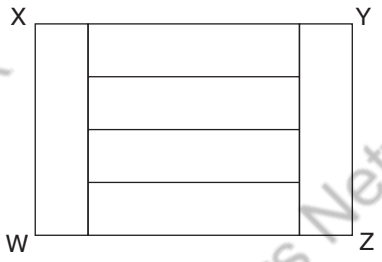


Figure WXYZ above is composed of 6 congruent rectangular panels. The area of figure WXYZ is 54 square centimeters. What is the perimeter of figure WXYZ in centimeters?

A. 24 cm
B. 30 cm
C. 36 cm
D. 45 cm
E. 50 cm

74. What is the prime factorization of 714?

F. $2 \cdot 357$
G. $2 \cdot 3 \cdot 119$
H. $2 \cdot 7 \cdot 51$
J. $6 \cdot 7 \cdot 17$
K. $2 \cdot 3 \cdot 7 \cdot 17$

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75. Three gallons of gasoline are needed to drive 65 miles. At this rate, how many gallons are needed to drive m miles?

A. $\frac{3}{65}$ gal.

B. $\frac{3m}{65}$ gal.

C. $3m$ gal.

D. $\frac{65}{3}$ gal.

E. $\frac{65m}{3}$ gal.

76. If Crystal multiplies her age by 3 and then adds 2, she will get a number equal to her mother's age. If m is her mother's age, what is Crystal's age in terms of m?

F. $-\frac{2}{3}m$

G. $\frac{m-2}{3}$

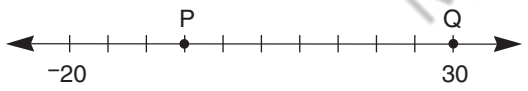
H. $3m + 2$

J. $\frac{m}{3} - 2$

M11-087D

K. $\frac{3}{m} - 2$

77.



Points P and Q are points on the number line above, which is divided into equal sections. What is the value of PQ?

A. $^-5$
B. 7
C. 30
D. 35
E. 50

78.

8:54 a.m.
9:12 a.m.
9:24 a.m.
10:24 a.m.
11:18 a.m.

Light A flashes every 12 minutes, and light B flashes every 18 minutes. The two lights flash at the same time at 8:00 a.m. At how many of the times listed above will they again both flash at the same time?

F. 1
G. 2
H. 3
J. 4
K. 5

79. Which sum below can be expressed as a non-repeating decimal?

A. $\frac{1}{2} + \frac{1}{6}$

B. $\frac{1}{3} + \frac{1}{4}$

C. $\frac{1}{3} + \frac{1}{5}$

D. $\frac{1}{4} + \frac{1}{5}$

E. $\frac{1}{4} + \frac{1}{6}$

80. To paint a room, Suzanne uses blue and white paint in the ratio of blue:white = 8:3. What was the **total** number of gallons of paint used if she used 6 gallons of blue paint?

F. $2\frac{1}{4}$ gal.

G. $8\frac{1}{4}$ gal.

H. 9 gal.

J. 16 gal.

K. 22 gal.

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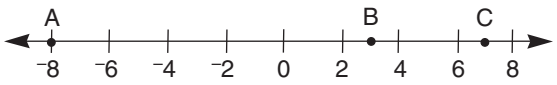
81. A cylindrical oil drum can hold 4,320 liters when it is completely full. Currently, the drum is $\frac{1}{3}$ full of oil. How many kiloliters of oil need to be added to fill the drum completely?

A. 1.44 kL
B. 2.88 kL
C. 4.32 kL
D. 14.40 kL
E. 28.80 kL

82.



On the number line above, A is located at −8, B is located at 3, and C is located at 7. D (not shown) is the midpoint of $\overline{AB}$, and E (not shown) is the midpoint of $\overline{BC}$. What is the midpoint of $\overline{DE}$?

F. −1.5
G. 1.25
H. 1.75
J. 2.25
K. 7.5

83. A certain insect has a mass of 75 milligrams. What is the insect's mass in grams?

A. 0.075 g
B. 0.75 g
C. 7.5 g
D. 75 g
E. 7,500 g

84. A box contains 11 marbles—7 red and 4 green. Five of these marbles are removed at random. If the probability of drawing a green marble is now 0.5, how many red marbles were removed from the box?

F. 1
G. 2
H. 3
J. 4
K. 5

85. A water tank is $\frac{1}{3}$ full; then, 21 gallons of water are added to the tank, making it $\frac{4}{5}$ full. How many gallons of water could the tank hold if it were completely full?

A. 35 gal.
B. 45 gal.
C. 56 gal.
D. 84 gal.
E. 105 gal.

176

86. RELATIONSHIP BETWEEN ROW A AND ROW B

Row A	1	2	3	4	5	6	7	8	9	10	11
Row B	1	1	2	2	3	3	4	4	5	5	6

The table above shows two rows of integers, Row A and Row B, and the relationship between them. Assume each row continues in the pattern shown. When the number 111 appears in Row A, what is the corresponding number that will appear in Row B?

F. 55
G. 56
H. 57
J. 59
K. 66

87. In a restaurant, the mean annual salary of the 4 chefs is $68,000, and the mean annual salary of the 8 waiters is $47,000. What is the mean annual salary of all 12 employees?

A. $47,000
B. $54,000
C. $55,500
D. $57,500
E. $61,000

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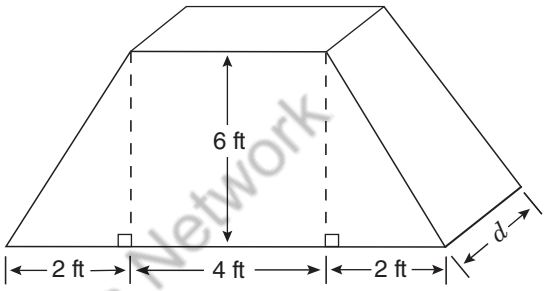
88. On the first leg of its trip, a plane flew the 900 miles from New York City to Atlanta in 2 hours. On the second leg, it flew the 1,400 miles from Atlanta to Albuquerque in $2\frac{1}{2}$ hours. How much greater was the plane's mean speed, in miles per hour, on the second leg than on the first?

F. 110 mph
G. 150 mph
H. 200 mph
J. 250 mph
K. 500 mph

97B

89.



The end of a tent has a trapezoidal cross-section as shown above. What is the depth (d) of the tent if its volume is 216 cubic feet?

A. $4\frac{1}{2}$ ft
B. 6 ft
C. $6\frac{1}{2}$ ft
D. 7 ft
E. 8 ft

90. Today, Tom is $\frac{1}{4}$ of Jordan's age. In 2 years, Tom will be $\frac{1}{3}$ of Jordan's age. How old is Jordan today?

F. 4 yr
G. 6 yr
H. 12 yr
J. 16 yr
K. 22 yr

91. How many positive two-digit numbers are evenly divisible by 4?

A. 22
B. 23
C. 24
D. 25
E. 26

92. A steel container is shaped like a cube 10 feet on each side. This container is being filled with water at a rate of 7 cubic feet per minute. At the same time, water is leaking from the bottom of the container at a rate of 2 cubic feet per minute. If the container is exactly half-filled at 9:00 a.m., at what time will the container begin to overflow?

F. 9:55 a.m.
G. 10:00 a.m.
H. 10:11 a.m.
J. 10:40 a.m.
K. 12:20 p.m.

93. Each week, Arnold has fixed expenses of $1,250 at his furniture shop. It costs Arnold $150 to make a chair in his shop, and he sells each chair for $275. What is Arnold's **profit** if he makes and sells 25 chairs in 1 week?

A. $1,875
B. $2,500
C. $3,125
D. $3,750
E. $4,375

94. In how many different ways can you make exactly $0.75 using only nickels, dimes, and quarters, if you must have at least one of each coin?

F. 2
G. 4
H. 6
J. 7
K. 12

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