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ENGLISH TEST

45 Minutes—75 Questions

DIRECTIONS: In the passages that follow, some words and phrases are underlined and numbered. In the answer column, you will find alternatives for the words and phrases that are underlined. Choose the alternative that you think is best, and fill in the corresponding bubble on your answer sheet. If you think that the original version is best, choose “NO CHANGE,” which will always be either answer choice A or F. You will also find questions about a particular section of the

passage, or about the entire passage. These questions will be identified either by an underlined portion or by a number in a box. Look for the answer that clearly expresses the idea, is consistent with the style and tone of the passage, and makes the correct use of standard written English. Read the passage through once before answering the questions. For some questions, you should read beyond the indicated portion before you answer.

PASSAGE I

Walter Reed’s Medical Breakthrough

Just over 100 years ago, one of the most important medical discoveries, in modern times¹ relieved the suffering and saved the lives of untold thousands. This major breakthrough was the identification of the cause and spread of the disease *yellow fever*. For several centuries, yellow fever was a scourge upon societies in various parts of the world, striking towns² and killing thousands of people.

Thanks to³ the efforts of Major Walter Reed and many courageous volunteers, the mechanisms for contracting and spreading yellow fever were uncovered.

During Reed’s lifetime, it was a common acceptance⁴ that yellow fever was spread by contact with infected items; such as the clothing or blankets of a person with⁵ yellow fever. Some doctors, however, questioned this notion, as the spread of yellow fever was not consistent

1. A. NO CHANGE
B. discoveries in modern, times
C. discoveries, in modern times,
D. discoveries in modern times
2. F. NO CHANGE
G. was in societies as a scourge
H. was a scourge and also problematic in societies
J. was annoying
3. A. NO CHANGE
B. In spite of
C. It was
D. Regardless of
4. F. NO CHANGE
G. accepted as a common fact
H. commonly accepted
J. accepted in a common way
5. A. NO CHANGE
B. items. Such as
C. items, such as
D. items such as being

GO ON TO THE NEXT PAGE.

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with the spread of other communicable diseases. ⁶

Doubts about the accepted theory's of the fever's spread prompted the U.S. Army to assign Reed and several doctors to the problem. They studied yellow fever in Cuba, where they were infecting soldiers fighting in the Spanish ⁸

American War at a discouraging rate. Acting on a hunch, several doctors volunteered to be bitten by mosquitoes; the volunteers developed yellow fever. This was enough information to spur General Reed to conduct more comprehensive experiments, so helping his cause. American and Spanish soldiers were paid to participate in these experiments, but some participants wanted only to advance science and refused the money.

The experiments began with the construction of a building in which men who did not have yellow fever were housed. These men were placed in contact with clothing that have been worn by yellow fever victims. Not one of ¹¹

these men contracted the fever. A second building was constructed with two sides separated by ¹²

6. Which of the following sentences, if inserted here, would be the best example of how yellow fever seemed to be spread differently than other communicable diseases?

F. For example, people had no choice but to wear clothing and use blankets, so the fever could not have spread that way.

G. For example, sometimes one person would get sick in a household, while nobody else in that household would get sick.

H. For example, yellow fever caused a great deal of pain in its victims.

J. For example, some doctors were willing to go against what the rest of the medical establishment was saying.

7. A. NO CHANGE

B. theorize

C. theories'

D. theories

8. F. NO CHANGE

G. the disease was

H. the doctors were

J. the Army was

9. The writer wants to emphasize how quickly yellow fever was infecting the troops in the Spanish American War. Which choice does that best?

A. NO CHANGE

B. a great

C. an alarming

D. a normal

10. F. NO CHANGE

G. experiments; which helped his cause.

H. experiments (which helped his cause).

J. experiments.

11. A. NO CHANGE

B. had been worn

C. has been worn

D. was being worn

12. F. NO CHANGE

G. fever, while a

H. fever; and a

J. fever, a

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a screen. An infected volunteer lived on one side, and more volunteers lived on the other side, where they were completely protected from mosquitoes. This experiment was repeatable many times, and the volunteers who were protected from mosquitoes never contracted the fever.

[14] As a result of his findings and of the bravery of the volunteers, measures were taken to control the mosquito population and to keep the insects away from people.

Eventually a vaccine was developed, which reduced further the outbreaks of yellow fever incidences.

13. A. NO CHANGE
B. repeated
C. repeating
D. a repeat

14. Which choice, assuming they are all true, would most logically introduce the final paragraph?
F. These results convinced Reed that yellow fever was spread by mosquitoes, and not by contact with contaminated materials.
G. A memorial was built in honor of the volunteers who helped advance the cause of science.
H. Reed died within a year of making these discoveries, but his contributions to medicine will never be forgotten.
J. Major Walter Reed not only was crucial to the eradication of yellow fever, but he performed research on typhoid as well.

15. A. NO CHANGE
B. which further reduced the incidence of yellow fever outbreaks.
C. which is often too expensive for poor residents of tropical countries who are most susceptible to yellow fever.
D. and it was no longer necessary for people to risk their health and lives to determine the cause and spread of yellow fever.

PASSAGE II

The Giant Panda

[1]

The Giant Panda is one of the best-known and most adored animals in the world. It is a very rare creature and is protected by law in it's native China, where it lives in the bamboo forests and on the mountain slopes.

16. F. NO CHANGE
G. their
H. there
J. its

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At one time, Giant Pandas lived at lower altitudes, but

17

farming and land development will have pushed the animals high into the mountains. We really know very little about how wild Pandas live, since so few people have seen them in their natural habitat.

[2]

In fact, Giant Pandas are by, nature extremely solitary animals, usually avoiding direct contact with other animals and even going out of their way to avoid other Giant Pandas. In there dense habitat, the black and white coat of the Giant Pandas may help make them more conspicuous to each other, which keeps them from encroaching on their neighbor's territory. Even in captivity where there may be as many as ten to twelve of the animals occupying the same caged area, rarely will you see them play with or acknowledge each other. They will find an unoccupied place in the area and sit down. Content to munch on bamboo or other food items, seemingly totally oblivious of each other. However, at crucial stages in their lives, Giant Pandas must give up being loners for a short time. In the spring, males and females must seek each other out in order to mate.

[3]

Giant Pandas are known to begin mating when they reach an age of about six years of age. Mating usually takes place sometime between the months of March, and May. During this brief courtship period, Giant Pandas are

24

17. Which of the choices would be most appropriate here?

- A. NO CHANGE
- B. In the near future,
- C. Suddenly,
- D. Rarely,

18. F. NO CHANGE

- G. will push
- H. have pushed
- J. will be pushing

19. A. NO CHANGE

- B. are, by nature,
- C. are, by nature
- D. are by nature

20. F. NO CHANGE

- G. this dense
- H. they're dense
- J. their dense

21. A. NO CHANGE

- B. their neighbor's territory, encroaching upon it.
- C. encroaching, and avoiding their neighbor's territory.
- D. their neighbor's encroaching on their territory.

22. F. NO CHANGE

- G. sit down; content
- H. sit down, content
- J. sit down content

23. A. NO CHANGE

- B. an age of about six years old.
- C. about six years in their age.
- D. about six years of age.

24. F. NO CHANGE

- G. March and May.
- H. March, and, May.
- J. March and, May.

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highly vocal animals. The males bark, and roar as they try

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to intimidate each other. The female in a tree perches while the male remains on the ground fending off any

26

potentially rivals. Female Giant Pandas give birth between 95 and 160 days after mating. Their cubs are born in dens

27

that they dig in the ground.

28

[4]

[29] Therefore, the Giant Panda is always a favorite at any zoo fortunate enough to have one. Its furry white and black body makes the Giant Panda appear cuddly and soft. It has a large, round head and a white face with black patches around the eyes. Giant Pandas have very thick,

oily, woolly fur that kept them warm in their natural cold, wet mountain habitat. Their fur is composed of two types of hairs: the top layer contains long, thick, coarse hairs, and a shorter, fine, dense, waterproof fur lies beneath.

30

While Giant Panda cubs weigh just a few ounces when they are born, an adult Giant Panda can weigh 200 to 300 pounds and stand five to six feet tall.

PASSAGE III

Alfred Nobel

How interesting that the Nobel Peace Prize is named for Alfred Nobel, the inventor of dynamite. A Swedish-born scientist, Alfred Nobel was the son of Immanuel Nobel, a brilliant and accomplished engineer. Born in 1833,

31

- 25. A. NO CHANGE
- B. barking and roaring
- C. bark and roar
- D. bark, and roaring

- 26. F. NO CHANGE
- G. trees in a perch
- H. perching in a tree
- J. perches in a tree

- 27. A. NO CHANGE
- B. potential rivals.
- C. rivals, potentially.
- D. potentially rivalry.

- 28. F. NO CHANGE
- G. it digs
- H. the females dig
- J. she digs

- 29. Which of the following offers the best introduction to Paragraph 4?
 - A. Due to the elusiveness of this fascinating creature, many people across the world have never seen a Giant Panda.
 - B. The Giant Panda is now considered a true bear.
 - C. Despite the dwindling natural habitat of the Giant Panda, scientists still attempt to study the animal in the wild.
 - D. The Giant Panda remains a difficult creature to study in the wild.

- 30. F. NO CHANGE
- G. that keeps
- H. that's keeping
- J. for to keep

- 31. A. NO CHANGE
- B. is named
- C. will be named for
- D. was named

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Alfred quickly was following his father's footsteps,
latching on to chemistry in particular. He

devotes his energies to developing a myriad of materials
and substances, patenting over 300 inventions throughout
his lifetime.

Nobel's work with dynamite was obviously fraught with
risk and danger and, indeed, Nobel lost his younger
brother, Emil, to an explosion in their own laboratory. ³⁴
Nobel knew that nitroglycerin, the basis for dynamite, had
great potential as a useful substance, but he also knew that

a big part of his work must resolve the safety issues in
addition.

(1) Due to more stringent laws enacted in Stockholm
regarding explosive materials, Nobel moved his lab out of
the city and onto a barge in nearby lake. (2) There he

discovered some way to control how dynamite is
detonated, and, subsequently, patented the blasting cap.

(3) He also figured out how to safely transport
nitroglycerin by converting it from a liquid into a paste.

(4) Once Nobel had a safe, usable product, he established
his company, Nitroglycerin AB, in 1864. (5) In little time,

Nobel dynamite became useful to consumers, but he
continued to work on many other inventions and products.

(6) Among his many patents were synthetic versions of

32. F. NO CHANGE
G. followed in
H. was followed by
J. followed by

33. A. NO CHANGE
B. devotion of his energy
C. devoted his energies
D. devoted of his energy

34. The writer wishes to include another example of the
dangers of dynamite during Nobel's time. Which of
the following true sentences, if inserted here, would
best fulfill that goal?
F. Even today, safety precautions are required when
working with dynamite.
G. Dynamite has many uses, from excavating for
natural resources to imploding decayed buildings.
H. Many other less serious explosions also occurred
in Nobel's laboratory, and grave danger was ever-
present.
J. As a volatile liquid substance, nitroglycerin is
highly explosive.

35. A. NO CHANGE
B. issues.
C. issues, also.
D. issues, too.

36. F. NO CHANGE
G. and took it out of the city
H. removing it out of the city
J. from out of the city

37. A. NO CHANGE
B. the way that
C. a way
D. how that

38. F. NO CHANGE
G. Nobels' dynamite
H. Nobel's dynamite
J. OMIT the underlined portion.

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rubber, silk, and leather, all of which are still used today. ³⁹

Nobel was also a scholar who had ⁴⁰

great interest in literature, poetry, and social issues. ⁴¹

In his will was instructed his estate to ⁴²

establish annual prizes to be given to outstanding ⁴³
 contributors in the fields of Physics, Chemistry, Medicine,
 Literature, and Peace. On December 10 each year,
 corresponding to Nobel's date of death, these esteemed ⁴⁴

prizes are awarded to people from over the worldwide. ⁴⁵

PASSAGE IV

Construction Destruction

Watching a local construction project as it unfolds can
 evoke a series of many different emotions. A new ⁴⁶

subdivision of homes built into a once ⁴⁷

thickly wooded plot of land often devastates the natural ⁴⁸
 beauty of the entire area. Many builders, however, will

- 39. Which of the following sequence of sentences makes this paragraph most logical?
 A. NO CHANGE
 B. 1, 3, 2, 4, 5, 6
 C. 6, 5, 4, 3, 2, 1
 D. 2, 4, 3, 1, 5, 6

- 40. F. NO CHANGE
 G. that
 H. which
 J. he

- 41. Which of the following alternatives to the underlined portion would NOT be acceptable?
 A. much interest in non-scientific areas.
 B. great interest in subjects other than chemistry, his main area of study.
 C. interesting literature, poetry, and social issues.
 D. a healthy interest in other areas, such as literature and poetry.

- 42. F. NO CHANGE
 G. his, will he
 H. his will he,
 J. his will, he

- 43. A. NO CHANGE
 B. establish one annual prize
 C. a prized establishment
 D. established prizes

- 44. F. NO CHANGE
 G. Nobels date
 H. Nobels' date
 J. Nobel's dates

- 45. A. NO CHANGE
 B. everywhere, worldwide.
 C. all over the world.
 D. OMIT the underlined portion.

- 46. F. NO CHANGE
 G. a variety of many
 H. many
 J. many series of

- 47. A. NO CHANGE
 B. building on
 C. built
 D. built on

- 48. Which choice provides the most detailed image?
 F. NO CHANGE
 G. treed
 H. woody
 J. wooded

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have taken great care to maintain as much of the natural
⁴⁹ landscape as possible by keeping mature trees untouched

when possible. Despite this careful attention, construction
⁵⁰ damage to existing trees can wreak havoc that only
 appears years after the construction is complete.

Any disruption to a tree's root system, trunk, or main
 branches can often be tied to construction. When
 considering the large, heavy equipment used at
⁵¹

construction sites, it is easy to understand why they choose
⁵² to flatten the land and start over with new plantings.

During construction, much of the damage to existing trees
 occurs beneath the soil, which is why it is often not
⁵³ detected until much later. If 40 percent or more of a root
 system is a loss, the tree will probably die.
⁵⁴

(1) Tree roots typically lie close to the surface of the soil
 and extends way beyond the circumference of the tree's
⁵⁵ canopy. (2) As the bulldozers, dump trucks, and cement
 trucks drives over the soil, they can easily crush the tender
⁵⁶ roots below. (3) Compacting soil around the vital roots

with the heavy equipment, may destroy the tree as
⁵⁷

49. A. NO CHANGE
 B. take great cares
 C. take great care
 D. takes great care
50. F. NO CHANGE
 G. as is possible
 H. whenever possible
 J. OMIT the underlined portion.

51. A. NO CHANGE
 B. largely heavy
 C. large heavily
 D. heavy, largely
52. F. NO CHANGE
 G. some builders
 H. some of them
 J. some

53. A. NO CHANGE
 B. they are
 C. its
 D. this damage is

54. F. NO CHANGE
 G. can be lost
 H. is lost
 J. is to be lost

55. A. NO CHANGE
 B. does extend
 C. extend
 D. will extend

56. F. NO CHANGE
 G. drive over
 H. drove over
 J. had driven over

57. A. NO CHANGE
 B. equipment may destroy
 C. equipment may destroy,
 D. equipment; may destroy

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well, ⁵⁸(4) Roots need air pockets around them in order to stay healthy. (5) Also, by adding fill dirt or topsoil, the roots suddenly become buried.

- 58. The writer wishes to conclude this sentence with a phrase that would continue the explanation of the importance of a tree’s root system. Which choice would best accomplish this?
 - F. since it is through the roots that a tree receives necessary oxygen, water, and minerals.
 - G. since roots are so important to the health of the tree.
 - H. since the tree cannot survive with damaged roots.
 - J. since roots are only one part of a tree’s system.

Questions 59 and 60 ask about the preceding passage as a whole.

- 59. For the sake of unity and coherence, Sentence 5 of the last paragraph should be placed:
 - A. where it is now.
 - B. immediately after Sentence 1.
 - C. immediately before Sentence 2.
 - D. immediately before Sentence 4.
- 60. Suppose that the writer has intended to write a brief essay discussing ways to prevent tree damage during construction. Does the essay successfully fulfill the assignment?
 - F. Yes, because the writer describes how trees are damaged by construction equipment and specifically states ways to prevent the damage.
 - G. Yes, because the essay’s main focus is preventing tree damage during construction.
 - H. No, because the essay focuses only on construction equipment, not on prevention of tree damage.
 - J. No, because the essay focuses primarily on how trees can be damaged during construction, not on ways to prevent damage.

PASSAGE V

Body Armor

If you were an officer of the law or an armed military person, would you prefer to wear a “bullet-proof vest” or “soft body armor” under your suit and uniform?
61

Most often the person would probably opt for the bullet-proof vest, as its name tends to denote a higher 62 level of security. The problem, though, is that no

- 61. A. NO CHANGE
- B. street clothes
- C. jacket
- D. uniform
- 62. F. NO CHANGE
- G. Most people
- H. Most of all people
- J. Most all persons

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“bullet-proof vest” is really bullet-proof. In fact, there is no protective clothing currently available that offers complete protection from firearms.

As weaponry and ammunition have changed through the centuries; so have the materials from which protective clothing is made. During the black powder era of the

1700s, silk was the material of choice to ward off injury or death from a black powder ball. Black powder propelled lead balls were much slower than present-day bullets, and silk was sometimes fairly effective protection against weapons at longer ranges. During World War II, the “flak jacket” was developed as a protective device. Soon, the best this attire could do was to protect the wearer from

shrapnel, not from the bullets themselves. Today’s modern protective vests are made from a variety of synthetic

materials, some of which are more with effectiveness than others. The idea is to produce a material that is strong enough to ward off high-speed bullets yet light enough to allow for ease of movement. This can be a daunting task when cost is also considered, [69]

Most people have the idea that protective gear causes a

bullet to deflect off of it, almost similar to a Ping-Pong ball hitting the lid of a tin can. However, these vests actually

absorb the impact of the bullet spreading its energy around

63. A. NO CHANGE
B. prevents bullets.
C. isn’t really bullet-proof.
D. like those worn by police officers, is really bullet-proof.

64. F. NO CHANGE
G. the centuries,
H. the centuries, so too
J. the centuries so

65. The best placement for the underlined portion would be
A. where it is now.
B. before the word *silk*.
C. at the end of that sentence.
D. after the word *death*.

66. F. NO CHANGE
G. Nevertheless,
H. Unfortunately,
J. Therefore,

67. A. NO CHANGE
B. Today’s recent
C. In today’s modern times
D. Today’s

68. F. NO CHANGE
G. more effective
H. affecting
J. affectively more

69. Which of the following true statements, if added here, would best serve as a further explanation of the idea presented in the preceding sentence?
A. since most heavy materials are too bulky for easy movement.
B. as it takes a great deal of study and research to develop these types of synthetic materials.
C. since this type of material is never inexpensive to develop or produce.
D. as most military personnel and police officers cannot afford to purchase their own equipment.

70. F. NO CHANGE
G. of it. In fact, sort of like
H. of it, almost sort of like
J. it, like

71. A. NO CHANGE
B. bullet, spreading
C. bullet. Spreading
D. bullet; spreading

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the body rather than been sustained in a single area.

72

Normally, the layers of the vest's material will stop the

73

bullet from entering the body. However, the vest's

wearer is very likely to sustain bruises

and perhaps even internal injuries.

74

Most police officers and military personnel are happy to

don their protective clothing as they head out on their

assignments. However, they know better than anyone that

their safety and security cannot be entrusting completely to

75

their protective gear.

72. F. NO CHANGE

G. sustaining itself

H. having been sustained

J. OMIT the underlined portion.

73. Which choice best shows that body armor does not always prevent injury or death?

A. NO CHANGE

B. In the best-case scenario,

C. Most of the time,

D. Almost always,

74. The writer is considering deleting the underlined portion. If the writer chooses to delete this phrase, the paragraph would primarily lose a statement that suggests:

F. wearing protective gear does not necessarily ensure that there will be a lack of serious injury.

G. wearing protective clothing ensures that there will be absolute safety from serious injury.

H. wearing protective gear always protects the wearer from death.

J. a wearer of protective gear will probably only sustain bruises.

75. A. NO CHANGE

B. trusting

C. entrusted

D. by trust

END OF THE ENGLISH TEST.

STOP! IF YOU HAVE TIME LEFT OVER, CHECK YOUR WORK ON THIS SECTION ONLY.

2



2

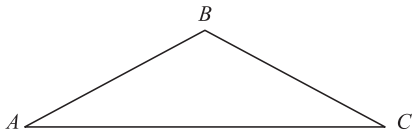
MATHEMATICS TEST

60 Minutes—60 Questions

DIRECTIONS: Solve each of the problems in the time allowed, then fill in the corresponding bubble on your answer sheet. Do not spend too much time on any one problem; skip the more difficult problems and go back to them later. You may use

a calculator on this test. For this test you should assume that figures are NOT necessarily drawn to scale, that all geometric figures lie in a plane, and that the word *line* is used to indicate a straight line.

1. In triangle ABC below, the measure of angle A is 20° and the measure of angle B is 3 times larger than the measure of angle C . What is the measure of angle B ?



- A. 40°
B. 60°
C. 80°
D. 120°
E. 160°
2. The 65-member high school band raised money to go on a trip by having a bake sale. If the original cost per band member for the trip is \$18.50 and the band members earned a total of \$585.00 at the bake sale, how much more money does each band member need in order to pay for the trip?
- F. \$9.00
G. \$9.50
H. \$18.50
J. \$46.50
K. \$65.00
3. Fred works at a car wash where he makes \$40.00 per day plus \$1.75 per car that he washes. Yesterday, Fred made a total of \$61.00. How many cars did he wash yesterday?
- A. 10
B. 12
C. 17
D. 20
E. 34

DO YOUR FIGURING HERE.

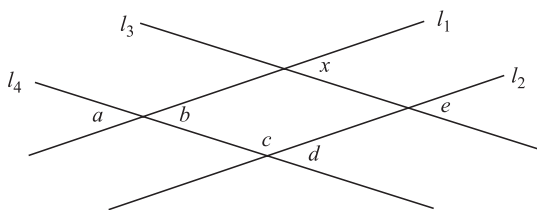
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2 \triangle \triangle \triangle \triangle \triangle \triangle \triangle \triangle 2

4. Molality, m , tells us the number of moles of solute dissolved in exactly 1 kilogram (kg) of solvent. Molality is represented by the equation, $m = \frac{s}{k}$, where s represents the moles of solute and k represents the mass of the solvent in kilograms. A solution is known to have a molality of 0.2 and contain 13 kg of solvent. What is the number of moles of solute contained in the solution?
- F. 0.01
G. 2.6
H. 3.2
J. 26
K. 32

DO YOUR FIGURING HERE.

5. In the figure below, l_1 is parallel to l_2 , and l_3 is parallel to l_4 . Which of the following is NOT equal to angle x ?



- A. a
B. b
C. c
D. d
E. e
6. Which of the following is equivalent to 4.2×10^{-5} ?
- F. 0.000042
G. 0.00042
H. 42,000
J. 420,000
K. 4,200,000
7. $3.234 \times 0.01 = ?$
- A. 323.4
B. 32.34
C. 3.234
D. 0.3234
E. 0.03234
8. For all $x \neq 1$, $\frac{x^2 - 2x + 1}{x - 1}$ is equal to ?
- F. 1
G. $x + 2$
H. x^2
J. $\frac{x + 2}{x - 1}$
K. $x - 1$

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2



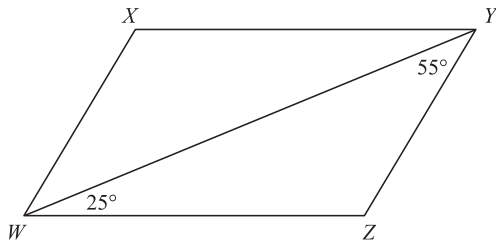
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9. If $9 - x^3 + 2 = 19$, what is the value of x ?

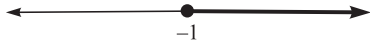
A. -2
 B. -1
 C. 2
 D. 3
 E. 8

DO YOUR FIGURING HERE.

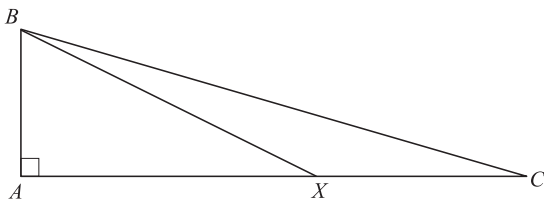
10. In the parallelogram below, what is the measure of $\angle WXY$?



- F. 25°
 G. 55°
 H. 65°
 J. 100°
 K. 120°
11. The graph below represents which of the following inequalities?



- A. $x > 1$
 B. $x < -1$
 C. $x \leq -1$
 D. $x \geq -1$
 E. $-1 > x > 1$
12. If $93 - x = 342$, then $x =$?
- F. -435
 G. -249
 H. -156
 J. 249
 K. 435
13. In the figure below, triangles ABC and ABX are both right triangles. If the length of \overline{AB} is 6 units, the length of \overline{BX} is 10 units, and the length of \overline{XC} is 4 units, what is the length of \overline{BC} ?



A. $\sqrt{11}$
 B. $2\sqrt{3}$
 C. $2\sqrt{10}$
 D. $2\sqrt{35}$
 E. $6\sqrt{5}$

GO ON TO THE NEXT PAGE.

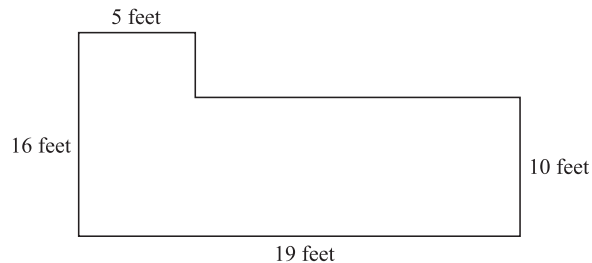
2**2**

14. A rectangular parking lot has an area 315 square yards. Its length (l) is 3 times its width (w). Which of the following equations could you use to determine the width of the parking lot?
- F. $3w \times w = 315$
G. $3l \times l = 315$
H. $w \times 3 = 315$
J. $w = \frac{315}{3}$
K. $w - 3 = 315$

DO YOUR FIGURING HERE.

15. Jordan went for a 3.5-mile jog on Monday that took him 40 minutes. If on Tuesday Jordan jogs at the same rate of speed, how far will he jog in 60 minutes?
- A. 3.5 miles
B. 4.0 miles
C. 5.25 miles
D. 7.0 miles
E. 7.25 miles

16. A floor has the dimensions shown below. How many square feet of tile are needed to cover the entire floor?



- F. 50
G. 95
H. 160
J. 190
K. 220
17. There are 32 ounces in a quart. If 2 quarts of milk costs \$2.65, what is the cost of milk per ounce, to the nearest cent?
- A. \$0.04
B. \$0.08
C. \$0.24
D. \$0.41
E. \$0.64

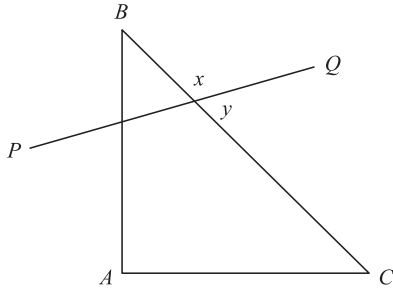
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18. In the figure below, triangle ABC is a 30–60–90 right triangle. If angle x measures 125° , what is the measure of angle y ?



- F. 35°
 G. 45°
 H. 55°
 J. 70°
 K. 90°

DO YOUR FIGURING HERE.

19. Given the system of equations below, $x = ?$

$$y + 3x = 9$$

$$2x - \frac{1}{3}y = 6$$

- A. 1
 B. 3
 C. 5
 D. 7
 E. 9

20. $\frac{\begin{pmatrix} 5 \\ 4 \end{pmatrix} \begin{pmatrix} 4 \\ 3 \end{pmatrix}}{\begin{pmatrix} 1 \\ 3 \end{pmatrix} \begin{pmatrix} 2 \\ 3 \end{pmatrix}} = ?$

- F. $\frac{2}{5}$
 G. $\frac{7}{15}$
 H. $\frac{4}{5}$
 J. $\frac{7}{4}$
 K. $\frac{15}{2}$

21. For all x , $x^2 - (3x - 2) + 2x(4x - 1) = ?$

- A. $x^2 - 5x - 2$
 B. $9x^2 + 5x - 2$
 C. $9x^2 - 5x + 2$
 D. $8x^2 - 3x$
 E. $9x^2 - 4x + 2$

GO ON TO THE NEXT PAGE.



22. For all $x \neq -3$, $\frac{x^2 - 6x + 9}{6x - 18} = ?$

F. $\frac{x + 3}{x - 3}$

G. $\frac{x - 3}{6}$

H. $\frac{1}{x - 3}$

J. $x - 3$

K. $\frac{x}{3}$

DO YOUR FIGURING HERE.

23. If $x = 3$ is 1 solution for the equation $2x^2 - 5x - a = 0$, what is the value of a ?

A. -2

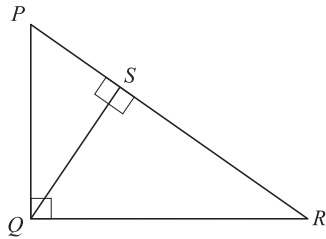
B. 0

C. 3

D. 5

E. 6

24. In the figure below, triangles PQR , PSQ , and QSR are right triangles. If the measure of angle P is 55° , what is the measure of angle R ?



F. 35°

G. 45°

H. 55°

J. 65°

I. 75°

25. Daniel is painting a wall in his bedroom. He can cover 36 square feet with 1 gallon of paint. If the wall is 8 feet high and 12 feet long, how many gallons, to the nearest whole gallon, will Daniel need to paint the wall?

A. 20

B. 16

C. 12

D. 4

E. 3

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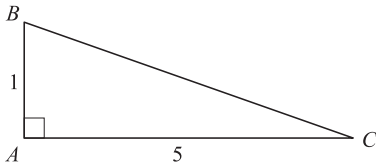
26. For all values, x , y , and z , if $x \leq y$ and $y \leq z$, which of the following CANNOT be true?

- I. $x = z$
- II. $x > z$
- III. $x < z$

- F. I only
- G. II only
- H. III only
- J. I and II only
- K. I, II, and III

DO YOUR FIGURING HERE.

27. As shown in the figure below, what is the sine of angle C ?



- A. $\frac{1}{5}$
 - B. $\frac{1}{\sqrt{26}}$
 - C. $\frac{\sqrt{26}}{5}$
 - D. 5
 - E. $\sqrt{26}$
28. What is the sum of all the solutions to $\frac{4x}{x-1} = \frac{4x}{2x+2}$?

- F. -3
- G. -2
- H. 2
- J. 5
- K. 8

29. $|-2|^2 + |-5| - 3 = ?$

- A. 0
- B. 6
- C. 8
- D. 10
- E. 13

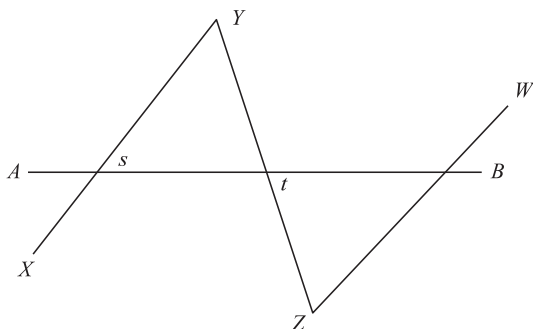
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30. In the figure below, parallel lines XY and ZW are bisected by line AB . If the lengths of XY , YZ , and ZW are the same, and angle t is 45° , then what is the measure of angle s ?



DO YOUR FIGURING HERE.

- F. 25°
 G. 45°
 H. 55°
 J. 75°
 K. 90°
31. If $x^2 - 3 \leq 13$, what is the greatest real value that x can have?
 A. 10
 B. 5
 C. 4
 D. 3
 E. 0
32. In an isosceles right triangle, the hypotenuse is 12. What is the length of one (1) of the sides?
 F. $6\sqrt{2}$
 G. $2\sqrt{6}$
 H. $2\sqrt{4}$
 J. $2\sqrt{3}$
 K. $\sqrt{3}$
33. In the standard (x,y) coordinate plane, what is the center of a circle with the equation $(x - 2)^2 + (y + 1)^2 = 4$?
 A. $(-2,1)$
 B. $(-2,4)$
 C. $(2,-1)$
 D. $(4,-2)$
 E. $(-2,2)$
34. What is the slope of the line determined by the equation $2x - 3y = 6$?
 F. -6
 G. -3
 H. $-\frac{3}{2}$
 J. $\frac{2}{3}$
 K. 2

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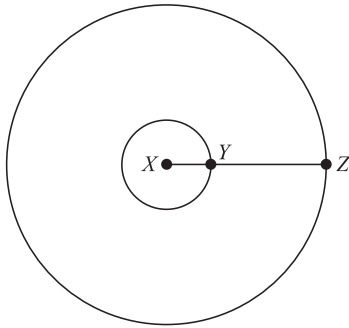


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35. Fifty (50) households were surveyed to determine the number of TVs in each of the households. The number of TVs in each household is shown in the chart below. What is the average number of TVs per household for these 50 households?

No. of TVs in household	2	3	4	5
No. of households	5	20	15	10

- A. 1.0
 B. 1.3
 C. 2.7
 D. 3.6
 E. 4.2
36. In the figure below, both circles are centered around X . The length of XY is 2 units and the length of XZ is 6 units. If the smaller circle is cut out of the larger circle, how much of the area, in square units, of the larger circle will remain?



- F. 12π
 G. 16π
 H. 32π
 J. 36π
 K. 40π
37. In the standard (x,y) coordinate plane, what is the x intercept of a line that has a slope of $\frac{2}{3}$ and passes through the point $(-2,2)$?
- A. $(-3,0)$
 B. $(-5,0)$
 C. $(3,0)$
 D. $(0,-2)$
 E. $(2,0)$
38. The figure below represents a solution set for which of the following inequalities?



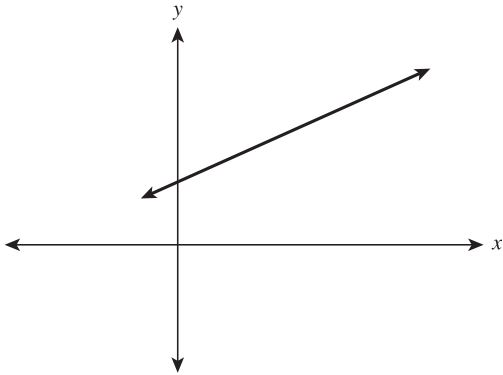
- F. $-2x + 12 < x - 2$
 G. $4x - 2 \geq 2x - 3$
 H. $5x + 5 \geq x$
 J. $3x - 1 \leq 5x + 3$
 K. $6x - 3 > 3x + 2$

DO YOUR FIGURING HERE.

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2**2**

39. What is the slope of the line pictured in the standard (x,y) coordinate plane below that passes through $(1,3)$ and $(5,5)$ in the standard (x,y) coordinate plane?

**DO YOUR FIGURING HERE.**

- A. -2
B. $-\frac{2}{5}$
C. $\frac{1}{5}$
D. $\frac{1}{2}$
E. $\frac{5}{3}$
40. A formula for calculating simple interest is $I = Pr$, where I is the interest earned in dollars, P is the principal or original investment, and r is the fixed rate of interest. If the amount of interest earned is \$2.25 and the interest rate is 3%, what is P ?
- F. \$6.75
G. \$7.50
H. \$13.30
J. \$67.50
K. \$75.00
41. Three vertices of a rectangle in the standard (x,y) coordinate plane have the coordinates $(-2,3)$, $(4,3)$ and $(4,2)$. What are the coordinates of the fourth vertex?
- A. $(-2,-2)$
B. $(3,-3)$
C. $(-3,3)$
D. $(2,-2)$
E. $(-2,2)$

GO ON TO THE NEXT PAGE.

2**2**

42. If two lines in the standard (x,y) coordinate plane are perpendicular and the slope of one of the lines is $-\frac{5}{7}$, what is the slope of the other line?

F. $\frac{7}{5}$

G. $\frac{5}{7}$

H. $-\frac{5}{7}$

J. $-\frac{7}{5}$

K. -5

DO YOUR FIGURING HERE.

43. Anne made apple jelly and applesauce out of a bushel of apples. If the number of jars of jelly, j , is 3 less than twice the number of jars of applesauce, a , which expression shows the relationship of jars of jelly, j , to the jars of applesauce, a ?

A. $2j = 2a - 3$

B. $j - 3 = 2a$

C. $2j = 3a$

D. $j + 3 = 2a$

E. $ja = 2a$

44. What are the solutions for the equation $3x^2 - 5x + 2 = 0$?

F. $x = -1, x = -\frac{3}{2}$

G. $x = 1, x = \frac{2}{3}$

H. $x = -5, x = \frac{2}{3}$

J. $x = \frac{2}{5}, x = 1$

K. $x = -1, x = \frac{3}{2}$

45. What is the smallest possible value for a where $y = \sin 2a$ reaches its maximum?

A. $\frac{\pi}{4}$

B. $\frac{\pi}{2}$

C. π

D. 2π

E. 4π

46. Let $x = 3y - 4z + 7$. What happens to the value of x if the value of y decreases by 2 and the value of z is increased by 1?

F. It increases by 3.

G. It increases by 5.

H. It decreases by 1.

J. It decreases by 10.

K. It is unchanged.

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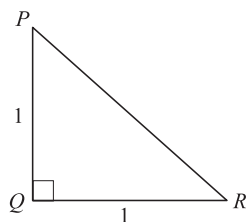
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47. Which of the following represents the values of x that are solutions for the inequality $(x - 1)(4 - x) < 0$?

DO YOUR FIGURING HERE.

- A. $-\frac{1}{4} < x < 1$
 B. $x < 1$ or $x > 4$
 C. $-1 < x < \frac{1}{4}$
 D. $-4 < x < 1$
 E. $\frac{1}{4} < x < 4$

48. In the figure below, triangle PQR is an isosceles right triangle. What is the ratio of the hypotenuse to the length of PQ ?



- F. $\frac{\sqrt{2}}{2}:1$
 G. $\frac{\sqrt{3}}{3}:1$
 H. $\sqrt{2}:1$
 J. $\sqrt{3}:1$
 K. $2\sqrt{2}:1$
49. If $\tan x = \frac{3}{4}$ and $0^\circ \leq x^\circ \leq 90^\circ$, then $\cos x = ?$

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

GO ON TO THE NEXT PAGE.

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50. For all $a \neq 0$ and $b \neq 0$, $\frac{a+b}{b(a+b)-2a(a+b)} = ?$

F. $\frac{1}{b-2}$

G. $\frac{1}{2ab}$

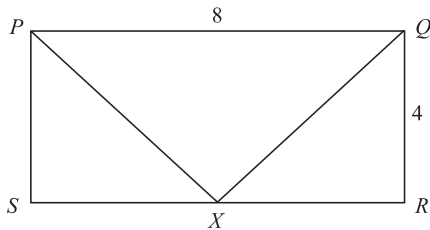
H. $\frac{1}{a+b}$

J. $\frac{1}{b-2a}$

K. $-\frac{1}{2b}$

DO YOUR FIGURING HERE.

51. In the figure below, $PQRS$ is a rectangle with sides of lengths shown. X is the midpoint of \overline{SR} . What is the perimeter of triangle PXQ ?



- A. 10
 B. $4\sqrt{2} + 12$
 C. $3\sqrt{2} + 12$
 D. $8\sqrt{2} + 8$
 E. $4\sqrt{2} + 4$
52. A line in the standard (x,y) coordinate plane has a slope of $\frac{2}{3}$ and passes through points $(3,4)$ and $(t,-2)$. What is the value of t ?
- F. 3
 G. 2
 H. 0
 J. -2
 K. -6
53. José is building a scale model of a sailboat, complete with a main sail. The actual sailboat's main sail measures 56 feet high with a base of 32 feet. If the model sailboat's main sail has a base of 8 inches, how tall will the model's main sail be, in inches?
- A. 14
 B. 28
 C. 32
 D. 56
 E. 112

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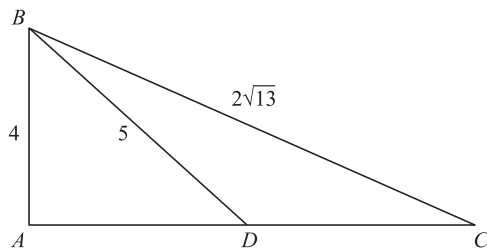


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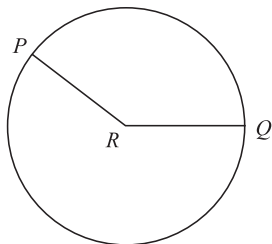
54. What values of x make the inequality $-5x - 7 > 3x + 1$ true?
- F. $x > 1$
 - G. $x < 8$
 - H. $x < -1$
 - J. $x > -4$
 - K. $x < 2$

DO YOUR FIGURING HERE.

55. In the figure below, the lengths of the sides of triangle BAC are as shown. \overline{BD} bisects side \overline{AC} . What is the length of DC ?



- A. $\sqrt{3}$
 - B. 2
 - C. 3
 - D. $2\sqrt{5}$
 - E. 4
56. Which of the following intervals contains the solution to the equation $x - 2 = \frac{2x + 5}{3}$?
- F. $-6 < x < 11$
 - G. $11 \leq x < 15$
 - H. $6 < x \leq 10$
 - J. $-5 < x \leq -3$
 - K. $-11 \leq x \leq -2$
57. In the figure below, P and Q lie on the circle R , which has a radius of 9. If the angle PRQ is 120° , what is the area of sector PRQ ?



- A. 3π
- B. 9π
- C. 27π
- D. 81π
- E. 243π

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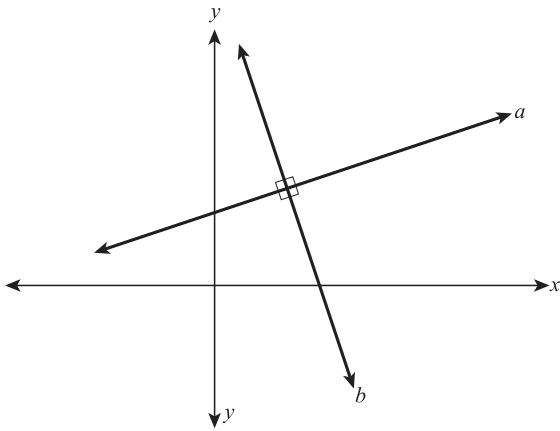
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58. Given the graph below in the standard (x,y) coordinate plane, the slope of line a is m_a and the slope of line b is m_b . Which of the following statements about the slope of lines a and b is true?

DO YOUR FIGURING HERE.



- F. $m_a = \frac{-1}{m_b}$
- G. $m_a + m_b = 0$
- H. $-\frac{1}{2}m_a = m_b$
- J. $m_a - 1 = m_b$
- K. $m_a - m_b = 0$
59. If $\cos x = \frac{5}{7}$ and $\tan x = \frac{4}{5}$, what is $\sin x$?
- A. $\frac{4}{7}$
- B. $\frac{7}{9}$
- C. $\frac{5}{4}$
- D. $\frac{9}{7}$
- E. $\frac{7}{5}$

GO ON TO THE NEXT PAGE.



60. A total of f men went on a fishing trip. Each of the r boats that were used to carry the fishermen could accommodate a maximum number of m passengers. If one boat had 5 open spots and the remaining boats were filled to capacity, which of the following expresses the relationship among f , r , and m ?

- F. $rm + 5 = f$
- G. $rm - 5 = f$
- H. $r + m + 5 = f$
- J. $rf = m + 5$
- K. $rf = m - 5$

DO YOUR FIGURING HERE.

**END OF THE MATHEMATICS TEST.
STOP! IF YOU HAVE TIME LEFT OVER, CHECK YOUR WORK ON THIS SECTION ONLY.**

3

3

READING TEST

35 Minutes—40 Questions

DIRECTIONS: This test includes four passages, each followed by ten questions. Read the passages and choose the best answer to each question. After you have selected your answer, fill in the corresponding bubble on your answer sheet. You should refer to the passages as often as necessary when answering the questions.

PASSAGE I

FICTION: *This passage is adapted from Jane Eyre by Charlotte Brontë, published in 1897.*

5 Seeing me, she roused herself: she made a sort of effort to smile, and framed a few words of congratulations; but the smile expired, and the sentence was abandoned unfinished. She put up her spectacles and pushed her chair back from the table.

10 “I feel so astonished,” she began, “I hardly know what to say to you, Miss Eyre. I have surely not been dreaming, have I? Sometimes I half fall asleep when I am sitting alone and fancy things that have never happened. It has seemed to me more than once when I have been in a doze, that my dear husband, who died fifteen years since, has come in and sat down beside me; and that I have even heard him call me by my name, Alice, as he used to do. Now, can you tell me
15 whether it is actually true that Mr. Rochester has asked you to marry him? Don’t laugh at me. But I really thought he came in here five minutes ago, and said that in a month you would be his wife.”

“He has said the same thing to me,” I replied.

20 “He has! Do you believe him? Have you accepted him?”

“Yes.”

She looked at me bewildered.

25 “I could never have thought it. He is a proud man; all the Rochesters were proud: and his father at least, liked money. He, too, has always been called careful. He means to marry you?”

“He tells me so.”

30 She surveyed my whole person: in her eyes I read that they had there found no charm powerful enough to solve the enigma.

35 “It passes me!” she continued; “but no doubt it is true since you say so. How it will answer I cannot tell: I really don’t know. Equality of position and fortune is often advisable in such cases; and there are twenty

years of difference in your ages. He might almost be your father.”

40 “No, indeed, Mrs. Fairfax!” I exclaimed, nettled; “he is nothing like my father! No one, who saw us together, would suppose it for an instant. Mr. Rochester looks as young, and is as young, as some men at five and twenty.”

“Is it really for love he is going to marry you?” she asked.

45 I was so hurt by her coldness and skepticism, that the tears rose to my eyes.

50 “I am sorry to grieve you,” pursued the widow; “but you are so young, and so little acquainted with men, I wished to put you on your guard. It is an old saying that ‘all is not gold that glitters’; and in this case I do fear there will be something found to be different to what either you or I expect.”

55 “Why?—am I a monster?” I said: “Is it impossible that Mr. Rochester should have a sincere affection for me?”

60 “No: you are very well; and much improved of late; and Mr. Rochester, I dare say, is fond of you. I have always noticed that you were a sort of pet of his. There are times when, for your sake, I have been a little uneasy at his marked preference, and have wished to put you on your guard; but I did not like to suggest even the possibility of wrong. I knew such an idea would shock, perhaps offend you; and you were so discreet, and so thoroughly modest and sensible, I hoped you
65 might be trusted to protect yourself. Last night I cannot tell you what I suffered when I sought all over the house, and could find you nowhere, nor the master either; and then, at twelve o’clock, saw you come in with him.

70 “Well never mind that now,” I interrupted impatiently; “it is enough that all was right.”

75 “I hope all will be right in the end,” she said: “but, believe me, you cannot be too careful. Try and keep Mr. Rochester at a distance: distrust yourself as well as him. Gentlemen in his station are not accustomed to marry their governesses.”

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1. When Mrs. Fairfax says, “Gentlemen in his station are not accustomed to marry their governesses,” she is expressing her belief that:
 - A. Mr. Rochester is incapable of loving Miss Eyre.
 - B. Mr. Rochester will treat Miss Eyre like a governess when they are married.
 - C. Mr. Rochester may not be sincere about his feeling towards Miss Eyre.
 - D. Mr. Rochester may not really have asked Miss Eyre to marry him.
2. It can be reasonably inferred from the conversation that Mrs. Fairfax believes Miss Eyre will:
 - F. recognize that Mr. Rochester actually wants to marry Mrs. Fairfax.
 - G. marry Mr. Rochester much sooner than originally planned.
 - H. no longer desire to marry Mr. Rochester.
 - J. potentially regret her decision to agree to marry Mr. Rochester.
3. Mrs. Fairfax’s opinion about Miss Eyre and Mr. Rochester’s relationship can best be exemplified by which of the following quotations from the passage?
 - A. “Mr. Rochester looks as young, and is as young, as some men at five and twenty.”
 - B. “How it will answer I cannot tell: I really don’t know.”
 - C. “He is a proud man; all the Rochesters were proud.”
 - D. “But I really thought he came in here five minutes ago, and said that in a month you would be his wife.”
4. The phrase “you were so discreet, and so thoroughly modest and sensible” (lines 63–64) is used by Mrs. Fairfax to:
 - F. explain why Miss Eyre should not marry Mr. Rochester.
 - G. explain why it is likely that Mr. Rochester really does not plan on marrying Miss Eyre.
 - H. explain why Mrs. Fairfax had not discussed Mr. Rochester’s feelings toward Miss Eyre before.
 - J. insult Miss Eyre and let her know that Mrs. Fairfax was disappointed in her.
5. The passage makes it clear that Miss Eyre and Mr. Rochester:
 - A. get married.
 - B. do not really know each other well enough to become engaged.
 - C. will not live happily because they will be shunned by society.
 - D. have a relationship that is not typical in their society.
6. In lines 47–52, Mrs. Fairfax compares Miss Eyre and Mr. Rochester’s relationship as possibly being similar to:
 - F. a mystery that cannot be solved.
 - G. an object that appears to be something but really is another thing entirely.
 - H. a game used to entertain the innocent and naïve.
 - J. a shiny gem that holds more value than it appears to.
7. We may reasonably infer from details in the passage that Miss Eyre and Mrs. Fairfax are alike because they both:
 - A. believe that Mr. Rochester should not marry his governess.
 - B. believe that Mr. Rochester will break Miss Eyre’s heart.
 - C. are of the same age and social class.
 - D. believe that Mr. Rochester is fond of Miss Eyre.
8. Based on the passage, Miss Eyre’s feelings about her relationship with Mr. Rochester can best be described as:
 - F. unbelievable.
 - G. erratic.
 - H. diplomatic.
 - J. self-assured.
9. It can be inferred from the passage that Mrs. Fairfax:
 - A. does not believe that Mr. Rochester’s actions with Miss Eyre are characteristic of him.
 - B. does not believe that Miss Eyre’s character is good enough for Mr. Rochester.
 - C. does not believe that Miss Eyre understands how wealthy and important Mr. Rochester is.
 - D. does not believe that Miss Eyre is being honest about her feelings towards Mr. Rochester.
10. Details in the passage suggest that Mrs. Fairfax is uncertain about Miss Eyre and Mr. Rochester’s engagement because:
 - F. Mrs. Fairfax believes that Miss Eyre is too young to be married.
 - G. Mrs. Fairfax does not believe that Miss Eyre really loves Mr. Rochester, due to their twenty-year age difference.
 - H. Mrs. Fairfax fears that Miss Eyre will be hurt by her relationship with Mr. Rochester if things do not go as Miss Eyre plans.
 - J. Mrs. Fairfax believes that Miss Eyre will not enjoy being both a governess and Mr. Rochester’s wife.

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PASSAGE II

SOCIAL SCIENCE: *Abraham Lincoln and the American Republic*

Throughout the Abraham Lincoln and Stephen Douglas presidential debates, Stephen Douglas repeatedly criticized Lincoln's "House Divided" speech. In his "House Divided" speech, Lincoln argues that the "Spirit of Nebraska," the alleged right to choose slavery over freedom in territories, had invaded the country and divided it. The North and the South were no longer working together to put slavery on the road to extinction. In fact, by the late 1850s, the South had fully embraced slavery and wanted to expand it. This new attitude toward slavery promoted by Southerners and some Northern Democrats led Lincoln to believe that they wanted to nationalize slavery.

In the Lincoln–Douglas debates, Lincoln stated that the nation was too divided to continue to compromise on slavery. Lincoln began his defense by referring to the actions of the Founding Fathers, who had worked to eradicate slavery. He mentioned the unanimous abolition of the African slave trade, as well as the Northwest Ordinance and the lack of the word *slave* in the Constitution, to show that the Founding Fathers intended slavery to be strangled in the original Southern States. Lincoln argued that the South had moved away from this course of ending slavery. Lincoln also stated that the federal government, through the Missouri Compromise and the Compromise of 1850, had always regulated slavery in the territories. The Missouri Compromise and the Compromise of 1850 were at odds with the new Dred Scott decision, which denied that Congress had a right to exclude slavery in the states. The Dred Scott decision also reinforced the idea that African Americans were not citizens and that slaves could be brought into the North without gaining their freedom. The Dred Scott decision had the effect of undermining Lincoln's Republican platform that wanted to repeal the Kansas/Nebraska Act.

Both in the debates and the "House Divided" speech, Lincoln repeatedly questioned the Democrats' involvement in the Dred Scott decision. Lincoln suggested that a conspiracy may have taken place between President Buchanan, President Pierce, Judge Taney, and other Democrats, like Stephen Douglas. Lincoln used evidence to show that the Democrats seemed to have known that the Dred Scott decision was coming. A key piece of evidence is that the Dred Scott decision was pushed back until after the election of 1856. In addition, the Democrats had drafted legislation in 1850 and 1854 that contained language which seemed to predict that Congress would not be able to exclude slavery in the territories because of Constitutional constraints. The Dred Scott decision cast doubts on the platform of the Democrats. The Democrats had been endorsing a platform of popular sovereignty, which stated that all new states and territories should be able to vote on whether slavery should be allowed within their borders. The Dred Scott decision reaffirmed for the South that slaves

were considered property. Because America's Constitution protects property, exclusion of slavery through unfriendly legislation was unconstitutional.

Lincoln spoke about the Kansas/Nebraska Act and his opinion on the repeal of the Missouri Compromise throughout the debates. He believed that popular sovereignty was contrary to the principle that valued freedom over slavery. The "Spirit of Nebraska" was what prompted Northerners like Douglas to create the Kansas/Nebraska Act that went against the "Spirit of '76," which was the hope of the Founding Fathers that slavery would be strangled within the original southern states over time. Without the majority of public opinion actively opposed to slavery, Lincoln realized that the battle over slavery could not be won.

Tensions had increased dramatically in both the North and the South in the late 1850s. Violence in Kansas had turned neighbor against neighbor, and there were even physical fights breaking out in the Senate. The South had begun to threaten secession with regularity, and many Northerners afraid of disunion were willing to sacrifice freedom to keep the country together.

Lincoln's "House Divided" speech and his arguments in the Lincoln–Douglas debates show that he believed that slavery was threatening to become a national institution. He saw the American public become increasingly indifferent to slavery and believed the people were naive to the Democratic conspiracy. By the late 1850s, Lincoln realized that a serious conflict was imminent. The North and South were drifting further and further apart and their ideologies were becoming more different every year.

11. The function of the first paragraph in relation to the passage as a whole is to:
- A. orient the reader to the subject of Stephen Douglas's policies toward slavery.
 - B. explain how slavery had become a national problem in the 1850s.
 - C. establish an outline of Lincoln's arguments during his debates with Stephen Douglas.
 - D. explain and introduce the different political parties that existed in the 1850s.
12. Which of the following best describes the way the second paragraph (lines 14–36) functions in the passage as a whole?
- E. It presents Lincoln's arguments from an historical perspective and introduces Lincoln's arguments about slavery.
 - G. It proves that Lincoln won the presidential debates because he referenced the work of the Founding Fathers to demonstrate his point.
 - H. It sheds light on why the South supported slavery and why many Northerners wanted to abolish it.
 - J. It diminishes the importance of Lincoln's arguments against the Dred Scott decision, because it referenced the "House Divided" speech instead.

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13. It can reasonably be inferred from the passage that, before the Dred Scott decision:
- A. African Americans were considered citizens and slaves simultaneously.
 - B. both the Southern states and the Northern states had abolished slavery.
 - C. no slaves were brought into the North.
 - D. it was unclear whether or not Congress could exclude slavery in the states.
14. The reference to the fights between neighbors in Kansas (lines 74–77) is used to illustrate the point made in the passage that:
- F. the people in Kansas supported Lincoln even though Kansas was considered a slave state.
 - G. slavery was becoming a more divisive institution that caused tension between abolitionists and supporters of slavery.
 - H. the actions of the Democrats caused pro-slavery feelings to spread into otherwise anti-slave states.
 - J. slavery was slowly becoming nationalized by spreading into the newly acquired territories.
15. Information in the fourth paragraph (lines 61–72) establishes that the “Spirit of ‘76” was:
- A. the desire of the Founding Fathers to eliminate slavery in America at the time the Declaration of Independence was written.
 - B. the desire of the Founding Fathers to encourage slavery in the original Southern states with the hope that slavery would die out on its own.
 - C. the desire of the Founding Fathers to allow each new state that entered the Union to decide whether or not to allow slavery within its borders.
 - D. the desire of the Founding Fathers to create a new nation built on the ideas of freedom, democracy, and liberty for all citizens.
16. Which of the following statements best describes how Lincoln felt the rest of the country was responding to the expansion of slavery?
- F. Lincoln believed that most Southerners wanted to limit slavery to the original Southern states.
 - G. Lincoln believed that all of the new territories desired slavery and that the North was unwilling to allow it.
 - H. Lincoln believed that the South desired the expansion of slavery in the territories and the North was becoming too indifferent or frightened to challenge the South.
 - J. Lincoln believed that most Northerners wanted the territories to have slavery because they felt it would help strangle slavery in the original Southern states.
17. The passage suggests that the Democrats knew the Dred Scott decision was coming because:
- A. the Dred Scott decision was postponed until after the 1856 presidential election.
 - B. Stephen Douglas and other Democrats used their influence to manipulate the United State Supreme Court and President Buchanan.
 - C. the Dred Scott decision was widely accepted only in the states where the Democratic Party was the majority.
 - D. the Dred Scott decision mimicked the platform of the Democratic Party.
18. According to the passage, all of the following were given as reasons by Lincoln as proof that the Founding Fathers endorsed the “Spirit of ‘76” EXCEPT:
- F. the unanimous abolition of the slave trade.
 - G. the lack of the exact word *slave* in the Constitution.
 - H. the Northwest Ordinance.
 - J. the Declaration of Independence’s promise of life, liberty, and the pursuit of happiness.
19. Lincoln’s accusation that some Americans wanted to nationalize slavery can be supported by all of the following EXCEPT:
- A. the Dred Scott decision, which supported the idea that Congress cannot exclude slavery in states because of constitutional constraints.
 - B. the desire by many in the South for slavery to be allowed to expand in the territories.
 - C. the increased popularity of the “Spirit of Nebraska.”
 - D. the popularity of the Missouri Compromise during the late 1850s.
20. The passage indicates that the late 1850s’ Democrats:
- F. were all Southern slaveholders who wanted to expand slavery into the territories.
 - G. used legislation in the early 1850s to support their agenda.
 - H. had a platform that would require all territories and new states to allow slavery.
 - J. supported the “Spirit of ‘76.”

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PASSAGE III

HUMANITIES: *This passage is adapted from the Memoirs of Mary Robinson, published in 1895.*

On the day of my first performance, the theatre was crowded with fashionable spectators; the green room and orchestra were thronged with critics. My dress was a pale pink satin, trimmed with crêpe, and richly spangled with silver. My head was ornamented with white feathers and my glorious suit, for the last scene, was white satin and completely plain, except that I wore a veil of the most transparent gauze, which fell quite to my feet from the back of my head, and a string of beads round my waist.

When I approached the side wing my heart throbbed convulsively; I then began to fear that my resolution would fail, and I leaned upon the Nurse's arm, almost fainting. Mr. Sheridan and several other friends encouraged me to proceed; and at length, with trembling limbs and fearful apprehension, I approached the audience.

The thundering applause that greeted me nearly overpowered all my faculties. I stood mute and bending with alarm, which did not subside till I had feebly articulated the few sentences of the first short scene, during the whole of which I had never once ventured to look at the audience.

On my return to the green room, I was again encouraged, as far as my looks were deemed deserving of approval; for of my powers nothing yet could be known, my fears having as it were affected both my voice and action. The second scene being the masquerade, I had time to collect myself. I never shall forget the sensation which rushed through my bosom when I first looked towards the pit. I beheld a gradual ascent of heads. All eyes were fixed upon me, and the sensation they conveyed was awfully impressive.

As I acquired courage, I found the applause augment; and the night was concluded with peals of loud approbation. I was complimented on all sides. I then experienced, for the first time in my life, a pleasure that language could not explain. I heard one of the most fascinating men, and the most distinguished geniuses of the age, honor me with partial admiration.

The second character which I played was Amanda, in *A Trip to Scarborough*. The play was altered from *Vanbrugh's Relapse*; and the audience, supposing it was a new piece, on finding themselves deceived, expressed a considerable degree of disapproval. I was terrified beyond imagination when Mrs. Yates, no longer able to bear the hissing of the audience, quitted the scene, and left me alone to encounter the audience. I stood for some moments as though I had been petrified. Mr. Sheridan, from the side wing, desired me not to quit the boards. The late Duke of Cumberland from the stage box, bade me take courage: "It is not you, but the play, they hiss," said his Royal Highness. I curtsied and that curtesy seemed to electrify the whole house, for a thundering appeal of encouraging applause followed.

The third character I played was Statira, in *Alexander the Great*. Mr. Lacey, then one of the proprietors of Drury Lane Theatre, was the hero of the night, and the part of Roxana was performed

by Mrs. Melmoth. Again, I was received with great warmth and approval. My dress was white and blue, made after the Persian costume; and though it was then singular on the stage, I wore neither a hoop nor powder; my feet were bound by richly ornamented sandals, and the whole dress was picturesque and characteristic.

Though I was always received with the most flattering approval, the characters in which I was most popular were Ophelia, Juliet, and Rosalind. Palmira was also one of my most approved representations. The last character that I played was Sir Harry Revel, in Lady Craven's comedy of *The Miniature Picture*; and the epilogue song in *The Irish Widow* was my last farewell to the labor of my profession.

21. Which of the following descriptions most accurately and completely represents this passage?
 - A. An actress reminisces about how fame and admiration changed her personality.
 - B. An actress gives a complete listing of the characters that she played during her career on stage.
 - C. An actress remembers specific performances and reflects on some more memorable performances.
 - D. An actress seeks to explain stage fright and how she overcame her fear of performing in front of crowds.
22. All of the following were clearly identified in the passage as plays that the narrator performed in EXCEPT:
 - F. *A Trip to Scarborough*
 - G. *Alexander the Great*
 - H. *The Miniature Picture*
 - J. *Vanbrugh's Relapse*
23. As it is used in line 13, the word *resolution* most nearly means:
 - A. decision.
 - B. pledge.
 - C. courage.
 - D. devotion.
24. Details in the passage suggest that:
 - F. the narrator was not always cast to play female characters.
 - G. the narrator preferred masquerade scenes to any other scene.
 - H. the narrator believes that no actress can be successful in theater if she has stage fright.
 - J. the narrator's stage fright disappeared because she never had to face hostile audiences.

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25. It can be most reasonably concluded from the narrator's reference to her performance in *A Trip to Scarborough* that:
- A. the narrator's acting was the cause for disapproval within the crowd.
 - B. the narrator did not become nervous in front of a disgruntled audience.
 - C. Mrs. Yates was not as successful an actress as the narrator.
 - D. the narrator acted in at least one play that was not a completely original work.
26. According to the passage, in which order did the following events occur in the writer's life?
- I. Appearing in *The Miniature Picture*
 - II. Playing the character of Statira in *Alexander the Great*
 - III. Playing the character of Amanda in *A Trip to Scarborough*
 - IV. Being involved in the production of *The Irish Widow*
- F. I, II, III, IV
 - G. III, II, I, IV
 - H. IV, III, II, I
 - J. II, III, IV, I
27. Which of the following best describes the narrator's experience during her first theater performance?
- A. Terrified throughout the entire performance because of the size of the audience
 - B. Initially frightened and overwhelmed, but joyful by the end of the performance
 - C. Proud of the beauty of her costume and the set of the play, but discouraged by her performance
 - D. Upset because of the difficult masquerade scene
28. All of the following are recollections of the narrator's first performance EXCEPT:
- F. the narrator's costumes during this performance were partially made of satin.
 - G. Nurse and Mr. Sheridan were present to assist the narrator.
 - H. there was a masquerade scene in her first performance.
 - J. the narrator received criticism for her opening lines that were delivered feebly.
29. As it is used in the passage, the word *faculties* (line 19) most nearly means:
- A. senses.
 - B. determination.
 - C. teachers.
 - D. emotions.
30. The primary focus of lines 34–40 is:
- F. the narrator's emotions immediately after her first performance.
 - G. the opinion of an important gentleman regarding the narrator's performance.
 - H. the narrator's elation because she had become famous.
 - J. the narrator's own reflections on the quality of her first performance.

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PASSAGE IV

NATURAL SCIENCE: *This passage discusses a disease that is detrimental to certain trees in North America.*

One of the greatest concerns of landscapers is tree disease. Ash trees are among the most common trees in North America, and they are also very susceptible to disease and decline.

- 5 One cause of decline in ash trees is *ash yellows*. This disease infects mainly white and green ash in the Northern United States. Ash yellows is caused by a *phytoplasma*: virus-like pathogens that are spread by insects. Ash yellows leads to a gradual decline in tree health for about two to ten years before the tree dies. Some common symptoms include short internodes and tufting of foliage at branch ends, pale green or pale yellow leaves, defoliation, and a sparse canopy. Cankers may also form on the branches and trunk.
- 15 Unsightly “witches’ broom” sprouts might appear on the branches, but it is more common for them to appear on the trunk. The trunk may also develop cracks if the tree is infected with ash yellows. Rarely does an ash tree recover from ash yellows. Experts guess that this disease is more common than most homeowners realize because witches’ brooms and yellowing are not always visible on the infected trees. Sometimes cankers and cracks are the only signs of the disease.

The term *ash decline* is used to refer to a tree with more than one condition. Ash decline may involve the ash yellows disease or another problem called *verticillium wilt*. Ash decline is often used to describe any decline in health that is unexplainable. Ash decline involves branch tip death, defoliation, and a slow decline over a number of years. Trees with ash decline may appear to recover in the spring and decline again in July and August.

Verticillium wilt on ash can also result in cankers and dieback similar to ash yellows. Trying to diagnose a tree is difficult because symptoms could be caused by a variety of problems. Sick ash trees may suffer from verticillium wilt, ash yellows, environmental stress, or a combination of these ailments.

Ash yellows has been a known disease in the United States since the 1930s. However, the disease was not distinguished from general ash decline involving environmental factors until the 1980s. In the last eighty years, North America has seen a significant decline in some of its ash trees.

No single factor has been proven to cause ash decline. Ash yellows and environmental factors may work together to create ash decline. Studies show that ash yellows is often detected where environmental factors like water shortage or insect damage are present. A survey of several Midwestern states found that some ash decline was found to be independent of ash yellows. The droughts in the 1980s may have caused the decline of ash trees in the Midwest. Cold winter temperatures may also play a role in decline.

Ash trees are important in the ecology of North American forests. The decline of these trees may have a severe impact on the health of other plant and animal communities. Green ash provides nesting sites for several species of birds and other wild creatures. Insects

and fish flourish in the cool waters made possible by the shade of ash trees. Green and white ash are also very popular in landscaping. Their decline could result in reduced property values.

Ash trees also represent a valuable hardwood resource. An estimated 275 million feet of ash lumber is harvested annually. In the Northeastern United States, about 33 percent of the commercial forest area includes ash trees.

There are no known cures for the diseases mentioned. Experts recommend removing very sick trees while keeping healthy trees well watered and fertilized. Dead limbs should also be removed to maintain the health of ash trees.

31. According to the passage, many scientists feel that most ash decline is likely caused:
- almost exclusively by ash yellows.
 - by a combination of disease and environmental factors.
 - by improper watering and fertilization by homeowners.
 - by a combination of ash yellows and verticillium wilt only.
32. The passage likens verticillium wilt to ash yellows in that:
- both diseases share the symptoms of cankers and dieback.
 - verticillium is likely to be a cause of ash yellows in white and green ash trees.
 - poor watering and fertilization techniques can cause verticillium wilt and ash yellows.
 - verticillium wilt and ash yellows were discovered around the same time period and kill a similar number of trees.
33. The difficulty in diagnosing disease in an ash tree is due to all of the following EXCEPT:
- similar diseases that have similar symptoms.
 - some ash trees in decline may be unhealthy due to environmental conditions rather than diseases.
 - more than one factor could be contributing to an ash tree’s decline.
 - sick ash trees are difficult to test because they decline so rapidly.
34. The passage states that ash yellows is caused by:
- insufficient water.
 - virus-like pathogens.
 - insects that eat or destroy the leaves of the ash trees.
 - cankers, witches’ broom, and cracking in the tree trunk.

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35. According to the passage, the author believes that:
- A. landscapers should never use ash trees in landscaping designs.
 - B. ash trees are the most important tree in North America.
 - C. ash trees are important because they can provide a home for some wildlife.
 - D. ash trees are essential to ecosystems because they lock in heat from the sun to warm shady forests.
36. According to the passage, which of the following is an argument for NOT blaming ash decline solely on ash yellows?
- F. Most ash decline is caused by verticillium wilt, not ash yellows.
 - G. A study cited in the passage proves that only environmental factors have impacted ash decline in recent years.
 - H. A study mentioned in the passage shows that drought and weather may contribute to ash decline.
 - J. verticillium wilt, ash yellows, and environmental conditions all contribute to ash decline equally.
37. As it is used in line 60, the word *flourish* most nearly means:
- A. decorate.
 - B. prosper.
 - C. decline.
 - D. swim.
38. The author would most likely agree with which of the following statements?
- F. It is important for research to continue into a cure for ash yellows.
 - G. Ash yellows is not worthy of continued scientific research.
 - H. All ash trees in North America will need to be destroyed to stop the spread of disease.
 - J. Ash trees are not significant to the good health of plant and animal communities.
39. According to the passage, what is NOT a characteristic of the disease ash yellows?
- A. The pathogens that cause the disease are spread by insects.
 - B. It causes a gradual decline in the tree's health.
 - C. Its symptoms include a sparse canopy and defoliation.
 - D. It turns the leaves of ash trees bright yellow.
40. Which of the following are accurate statements about ash trees, according to the passage?
- I. Ash trees with ash yellows disease are easily cured.
 - II. Ash trees infected with ash yellows usually die after having the disease for two to ten years.
 - III. Ash trees infected with ash yellows do not usually recover.
 - IV. Ash trees infected with ash yellows sometimes appear to recover in the spring.
- F. I, II, III, IV
 - G. II and III only
 - H. I and IV only
 - J. II, III, and IV only

END OF THE READING TEST.**STOP! IF YOU HAVE TIME LEFT OVER, CHECK YOUR WORK ON THIS SECTION ONLY.**

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SCIENCE REASONING TEST*35 Minutes—40 Questions*

DIRECTIONS: This test includes seven passages, each followed by several questions. Read the passages and choose the best answer to each question. After you have selected your answer, fill in the corresponding bubble on your answer sheet. You should refer to the passages as often as necessary when answering the questions. You may NOT use a calculator on this test.

PASSAGE I

Earth's habitability is sustained by the sun. Currently, the sun provides enough light and warmth to maintain temperature conditions that can support life on our planet. It is undisputed that the sun is a star. All stars go through phases where they change in size, temperature, and brightness. Two scientists present their views on how long Earth will remain habitable.

Scientist 1

Earth's sun has another 7 billion years before it enters the Red Giant phase. Currently, Earth could not sustain human life during the Red Giant phase. However, it is important not to believe that human life on Earth will immediately cease to exist as we know it in 7 billion years. Technology has played a huge role in helping humans adapt to conditions on this planet. We humans have 7 billion years to advance technology and find solutions to adapt to the atmospheric changes the Red Giant phase would bring. For instance, creating a large sunshade to protect Earth would allow life to continue even when the sun enters the Red Giant phase. Another solution would be to develop technology that would stir the sun and bring new hydrogen to the sun's core. This would greatly extend the current phase that our sun is in. There is enough time and incentive to discover ways to thwart the natural progress of nature. Therefore, I believe that human life on this planet will exist indefinitely.

Scientist 2

The sun will enter its Red Giant phase in about 7 billion years. However, new models suggest that Earth has less than a billion years before atmospheric carbon dioxide levels drop to levels that can no longer support photosynthesis. This would lead to a dramatic temperature increase. Once Earth's average temperature rises to above 70°C, the oceans will evaporate and Earth's water sources will be almost completely eliminated. One billion years is not long enough for humans to evolve in order to meet large atmospheric and environmental changes, or to develop the technology needed to make Earth habitable. In a billion years, atmospheric changes will eliminate all life on Earth as we know it. Humans need to accept the reality that advanced life flourishes for only a limited period of time. Science fiction—inspired plans to create space colonies or massive sunshades

are unrealistic and will not likely be developed in the next billion years.

- If the interpretation of Scientist 1 is correct, which of the following generalizations about technology is most accurate?
 - Technology only develops when there is a dire need for it and plenty of time to conduct experiments.
 - Some technology can either alter or enhance natural forces.
 - Technology is solely responsible for making the planet habitable.
 - Technology can help prevent the sun from changing indefinitely.
- Studies show that Venus may once have had an atmosphere and environment almost identical to Earth's. Now, Venus has no water on its surface or in its atmosphere. How would Scientist 2 most likely explain the change in Venus's atmosphere and environment?
 - Venus's living beings were not able to stir the sun to bring new hydrogen to its core.
 - Venus's sun entered its Red Giant phase much earlier in the planet's development.
 - The carbon dioxide levels in the atmosphere dropped to levels that no longer supported photosynthesis.
 - Venus's location to the sun made it more vulnerable to atmospheric and environmental changes.
- Which of the following does Scientist 1 suggest would postpone the sun reaching its Red Giant phase?
 - Using technology to create space colonies built from pieces of meteorites
 - Using technology to create a giant sunshade to protect Earth from the sun
 - Using technology to change the levels of hydrogen in the sun's core
 - Using technology to increase the amount of hydrogen in Earth's core

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4. Scientist 1 suggests that:
- F. humans will always be adapt to any changes in Earth's atmosphere and environment.
 - G. the earth will no longer be able to sustain human life in 7 billion years.
 - H. sufficient time and incentive are not necessary elements in advancing technology.
 - J. creating sunshades would help to increase levels of carbon dioxide in the air, which is important in maintaining life on the planet.
5. The passage argues that Scientists 1 and 2 disagree on:
- A. whether technology will evolve in time to prevent Earth from becoming inhabitable.
 - B. whether the sun will ever enter the Red Giant phase.
 - C. whether water and a temperate climate are needed for human survival.
 - D. whether the technology to create space colonies already exists.
6. The views of both scientists are similar because they both argue that:
- F. humans will be able to exist indefinitely on Earth.
 - G. 7 billion years is long enough to create technology that will protect the earth from a changing sun.
 - H. the earth is subject to future atmospheric changes.
 - J. it might be possible to discover new planets that are able to sustain human life.
7. Which of the following findings, if true, would weaken the arguments of Scientist 2?
- A. The planet Venus was unable to sustain life when atmospheric changes occurred.
 - B. Studies have shown that, during prehistoric times, Earth's temperature reached 75° Celsius.
 - C. It is impossible to create a space colony large enough to support life for long periods of time.
 - D. Recent scientific models have shown that the earth will not be habitable in 1 billion years.

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PASSAGE II

Radon is a radioactive gas that occurs naturally in the environment as a result of the decay of uranium. If inhaled into the lungs at high concentrations and over a long period of time, radon gas can increase the chance that an individual will develop lung cancer.

Outdoors, radon levels are rarely high enough to pose a health threat to individuals. Indoors, however, radon is a concern because it can seep into the foundation of a home through the ground and accumulate in areas with little ventilation, where levels can then become threatening. Radon gas can seep from the ground through many different pathways, such as cracks in the basement floor, through drains and sump pumps, or through loose-fitting pipes.

The only way to detect radon levels is through testing, using a specialized sensing device. Radon is colorless and odorless, and the levels are constantly changing from one area to the next and from one day to the next. In addition, radon exposure produces no short-term health symptoms. Therefore, radon levels should be monitored on a regular basis.

Radon potential is an estimate of the radon level of a structure measured in *picocuries* per liter of air (pCi/L). A picocurie is one-trillionth of a Curie (a measurement unit of radioactivity). The Environmental Protection Agency (EPA) assigns each county in the United States to a zone, based on its radon potential. Radon potential is not used to determine which houses should be tested in an area. Instead, levels are used to determine if radon-resistant features should be installed in new structures being built in an area. Table 1 shows the radon levels in pCi/L for each of 3 zones, with areas in Zone 1 indicating a high radon potential, areas in Zone 2 indicating a moderate radon potential, and areas in Zone 3 indicating a low radon potential.

Zone	Radon level (pCi/L)
3	<2
2	2 to 4
1	>4

8. According to the passage, radon levels are tested in indoors because:

F. radon levels are different in every area, but they are always the same indoors.

G. radon accumulates in the air inside a home and poses a possible health threat.

H. radon gas has a strong, unpleasant smell that can only be detected indoors.

J. radon levels vary from season to season but are similar for most houses.

9. All of the following are mentioned as characteristics of radon that contribute to the importance of continual in-home testing EXCEPT:

A. radon is colorless and odorless.

B. radon produces no short-term symptoms.

C. radon levels vary from day to day.

D. radon is a naturally occurring radioactive gas.

10. Studies have shown that existing homes in the same neighborhood can have very different radon levels. Are these findings consistent with information presented in the passage?

F. No, because radon levels cannot be measured in existing homes.

G. No, because radon seeps into all homes in the same way.

H. Yes, because the occurrence of radon is very rare.

J. Yes, because radon levels vary depending on many different factors.

11. According to the passage, which of the following radon levels would be considered most harmful?

A. 5.2 pCi/L

B. 4.0 pCi/L

C. 3.0 pCi/L

D. 1.9 pCi/L

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PASSAGE III

Predation is an interaction between individuals of 2 species in which one is harmed (the prey), and the other is helped (the predator). Predation can occur among plants and animals as well as between plants and animals. Some biologists contend that *herbivores*, or plant eaters, are predators. Table 1 indicates some characteristics and examples of certain predators.

Predator	Characteristics	Examples
Herbivore	Eats plants only, can be very selective in the plants that they eat	Rabbits, deer, some birds, some insects
Carnivore	Eats herbivores and other carnivores	Lions, wolves, some birds, some insects
Parasite	Feeds on another organism's parts, generally without killing the organism	Bacteria, some worms, some plants

Predation is very important in maintaining a natural balance in any given ecosystem. For example, without predators, prey populations tend to grow exponentially. Without prey, predator populations tend to decline exponentially. Predators consume individual members of the prey population, thereby controlling the overall numbers in the ecosystem. The number of prey consumed depends on the number of prey present as well as the number of predators present. The rate of change in the number of prey is a function of the birth of new prey minus the death of other prey, due either to predation or other causes. The death rate is assumed to depend on the number of prey available and the number of predators. The rate of change in the number of predators is a function of the births of new predators—which depends on the number of prey—minus the death of some predators.

Over long periods of time, predator and prey tend to balance each other out. This is called the *predator-prey cycle*. Prey numbers will increase when predator numbers decrease. When the number of prey reaches a certain point, predators will start to increase until they eat enough prey to cause a decline in prey numbers. When this happens, the number of predators will begin to decrease because they can't find enough prey to eat, and the cycle will begin again. Figure 1 represents an example of a *predator-prey cycle*.

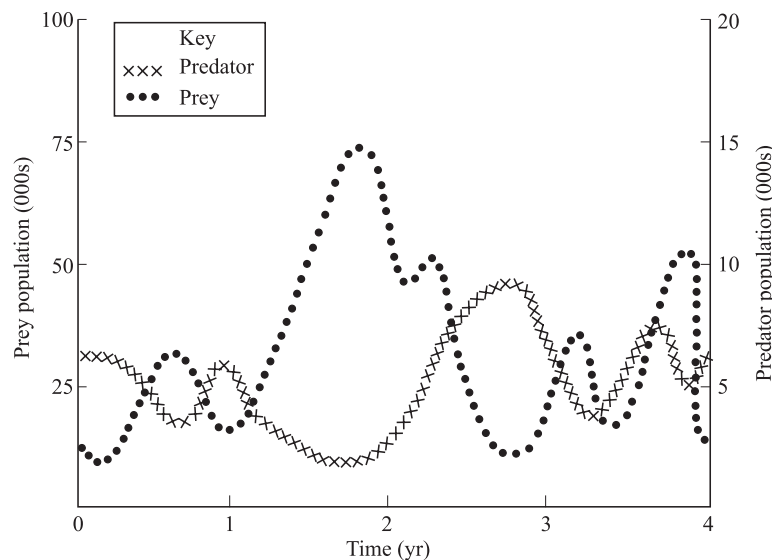


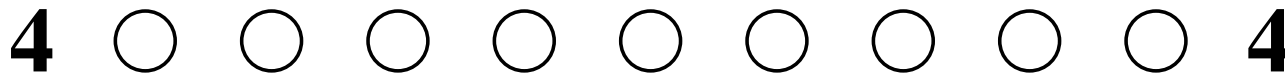
Figure 1

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12. Based on information in the passage and in Table 1, an herbivore is:
- F. a predator only.
 - G. both a parasite and a predator.
 - H. prey only.
 - J. both a predator and prey.
13. According to information in the passage, the number of prey consumed in an ecosystem is dependent on:
- A. the natural balance of the ecosystem.
 - B. the total number of predators that die because of predation.
 - C. the type of parasites available in the ecosystem.
 - D. the number of predators present and the number of prey present.
14. Based on Figure 1, during the first year, predator numbers were mostly:
- F. higher than prey numbers.
 - G. lower than prey numbers.
 - H. equal to prey numbers.
 - J. unable to be determined.
15. Studies have shown that a certain species of deer will only eat a specific type of plant found in the deer's natural habitat, and nothing else. Is this finding supported by the information in the passage?
- A. No, because a deer is an herbivore, which means it eats all plants
 - B. No, because a deer is a carnivore and does not eat plants
 - C. Yes, because a deer is an herbivore, and herbivores can be selective eaters
 - D. Yes, because a deer is a prey animal, so it must use caution when eating
16. Based on Figure 1, during which year were the greatest number of prey animals available?
- F. 1
 - G. 2
 - H. 3
 - J. 4



PASSAGE IV

The term *weathering* refers to the processes that cause surface rock to disintegrate into smaller particles or dissolve in water. These processes are often slow, taking place over thousands of years. The amount of time that rock has been exposed to the elements (primarily wind and water) influences the degree to which the rock will weather.

Weathering processes are divided into three categories: physical, chemical, and biological.

Table 1 shows some of the factors that contribute to physical weathering.

Table 1	
Physical weathering	
Mechanism	Results
Animals and plants	Animals burrow into the earth, moving rock fragments and sediment. Plant roots have the same effect.
Crystallization	Water evaporates from rock, which leads to the development of salt crystals. The crystals grow, eventually breaking apart the rock.
Temperature variation	Minerals in rocks expand and contract with temperature changes. Repeated expansion and contraction cracks and splits the rocks.
Exfoliation	Exfoliation occurs as slabs of cracked rock slip off other rock, which leads to further erosion.

Chemical weathering occurs when minerals in rock are chemically altered. Table 2 shows some of the factors that contribute to chemical weathering.

Table 2	
Chemical weathering	
Mechanism	Results
Carbonation	Water combines with carbon dioxide to form carbonic acid. The carbonic acid chemically alters the rock, so that it dissolves.
Hydrolysis	Water, usually in the form of rain, disrupts the chemical composition of the minerals, destabilizing the rock.
Hydration	When water combines with compounds in rock, the mineral's grain will be physically altered.
Oxidation	Oxygen combines with compound elements in rock to form oxides and weaken the rock.

Plants and bacteria contribute to biological weathering. The ultimate product of biological agents on rock is soil. Table 3 shows some factors of biological weathering.

Table 3	
Biological weathering	
Mechanism	Results
Lichens	Lichens are rich in chelating agents, which trap elements of the decomposing rock, resulting in etching and grooving.
Bacteria	Alters the acidity of groundwater, which can lead to erosion of the rock.

17. Based on the data in the passage, plants contribute to which of the following types of weathering?
 - A. Physical only
 - B. Both physical and biological
 - C. Biological only
 - D. Physical, chemical, and biological
18. According to Table 1, extreme temperature changes can lead to:
 - F. increased acidity in groundwater.
 - G. the creation of carbonic acid.
 - H. the development of salt crystals.
 - J. cracked and split rock.
19. A layer of fine sediment mixed with some organic material is found surrounding a rock formation. The most likely cause for this is:
 - A. chemical weathering.
 - B. exfoliation.
 - C. biological weathering.
 - D. oxidation.
20. Based on Table 2, the factor that contributes most to the alteration of minerals and rock is:
 - F. the acidity level.
 - G. the presence of water.
 - H. the availability of oxygen.
 - J. the mineral composition of the rock.
21. According to Table 3, a chelating agent:
 - A. releases elements into the soil.
 - B. alters the acidity of groundwater.
 - C. dissolves rapidly in water.
 - D. traps elements of the decomposing rock.
22. Rainwater is slightly acidic, and it can dissolve many minerals over time. This process is most consistent with the mechanism of:
 - F. exfoliation.
 - G. oxidation.
 - H. hydrolysis.
 - J. chelation.

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PASSAGE V

Sea anemones look like plants, but they actually are predatory animals. They are invertebrates, which means that they do not have a skeleton. To protect themselves, they will attach to firm objects on the sea floor, such as rock or coral.

Sea anemones can alter their body shape according to changes in their environment. For example, when ocean currents are strong, the sea anemone will reduce its internal volume in order to decrease the surface area that is exposed to the current. Sea anemones are dependent on water flow for food and nutrients and also for assistance in eliminating waste.

Most anemones share a symbiotic relationship with marine algae called *zooxanthellae*. These are photosynthetic organisms whose waste products are a food source for the sea anemone. The sea anemone also enjoys a mutualistic relationship with the clown fish. This fish is immune to the stinging tentacles of the sea anemone, and it helps the anemone by actually cleaning the tentacles. The cleaning process yields food for the clown fish, while it remains protected from potential predators by the sea anemone's stinging tentacles.

Figure 1 shows a cross-section of portions of the internal anatomy of a sea anemone.

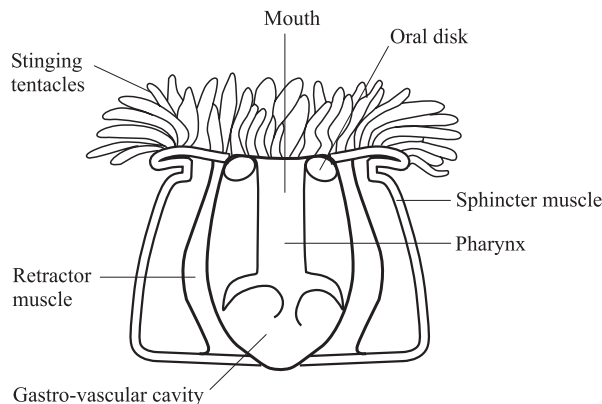


Figure 1

23. According to Figure 1, the sea anemone's mouth is located:

- A. below the pharynx.
- B. at its center.
- C. near its base.
- D. inside the sphincter muscle.

24. According to information in the passage, the sea anemone benefits from the presence of:

- F. both the clown fish and zooxanthellae.
- G. the clown fish only.
- H. zooxanthellae only.
- J. neither the clown fish nor zooxanthellae.

25. Which of the following statements about the sea anemone is supported by the passage? The sea anemone most resembles:

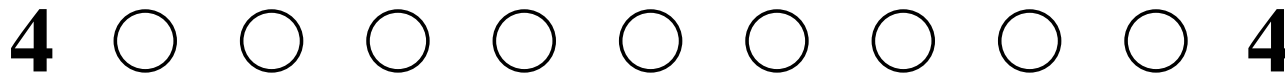
- A. a clown fish.
- B. a flower.
- C. marine algae.
- D. a rock.

26. Suppose that a strong storm stirred up the water in which a sea anemone was living. The sea anemone's response would most likely be:

- F. to expose itself to the strong current.
- G. to seek the protection of a clown fish.
- H. to reduce its internal volume.
- J. to detach itself from the seafloor.

27. As shown in Figure 1, the part of the sea anemone's anatomy that connects its mouth to its gastrovascular cavity is the:

- A. oral disk.
- B. tentacle.
- C. pharynx.
- D. sphincter muscle.



PASSAGE VI

Compost is the name given to a mixture of decaying leaves and other organic material. This mixture is often used as fertilizer. Several students designed experiments to test various types of soil, and various combinations of soil and compost on plant growth.

Experiment 1

The students dug a soil sample from an empty field next to the school. They put soil into 4 different clay pots, and mixed in various amounts of compost so that the volume of soil mixture was the same in each pot. They then planted the same number of radish seeds (4) in each pot. The soil/compost mixtures for each pot are shown in Table 1.

The clay pots were placed next to each other on a windowsill and watered at the same time each day. The students took care to ensure that the pots each received the same amount of sunlight and water each day. After 2 weeks, the students began recording the growth of the radish plants. They continued recording this data for two more weeks. The results are shown in Table 2.

Experiment 2

The students repeated Experiment 1, with the following changes; each pot contained a different soil type, and no compost was used. This experiment was begun at the same time as Experiment 1. The results of Experiment 2 are shown in Table 3.

Soil/compost mixture (Pot #)	% Soil/% compost
1	25%/75%
2	50%/50%
3	75%/25%
4	100% soil

Soil/compost mixture (Pot #)	Average plant height (cm)			Average number of leaves		
	14 days	21 days	28 days	14 days	21 days	28 days
1	4.2	5.3	6.2	3	5.5	8
2	3.8	4.8	5.1	3	4.5	6.5
3	3.3	4.4	4.8	2	4	5.5
4	3.2	4.1	4.4	2	3.5	4.5

Soil type	Average plant height (cm)			Average number of leaves		
	14 days	21 days	28 days	14 days	21 days	28 days
Sand (1)	2.4	2.9	3.4	1	2.5	3.5
Potting soil (2)	3.9	4.7	5.3	3	4	6
Soil from field near the school (3)	3.2	4.2	4.3	2	3.5	4.5
Mixture of sand and potting soil (4)	3.1	3.3	4.2	2	4	5.5

4



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28. Based on the results of Experiment 2, which soil type yielded the most overall growth after 28 days?
- F. Sand
 - G. Potting soil
 - H. Soil from the field near the school
 - J. Mixture of sand and potting soil
29. Based on the results of Experiment 1, which soil/compost mixture yielded the greatest average plant height after the first 2 weeks?
- A. 4
 - B. 3
 - C. 2
 - D. 1
30. Experiment 2 was different from Experiment 1 in that none of the clay pots:
- F. were watered during the first 2 weeks.
 - G. contained any compost.
 - H. contained any soil.
 - J. were placed on the windowsill.
31. The results of Soil Type 3 in Experiment 2 and Pot Number 4 in Experiment 1 were almost identical. This is most likely because:
- A. the same amount of compost was used.
 - B. the plants were allowed to grow for 2 more weeks.
 - C. the pots were the same size.
 - D. the same type of soil was used.
32. In Experiment 2, how many seeds were planted in each clay pot?
- F. 4
 - G. 14
 - H. 21
 - J. Cannot be determined.
33. According to the results of Experiment 1, what percentage of compost yielded the highest average number of leaves?
- A. 100%
 - B. 75%
 - C. 50%
 - D. 25%

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PASSAGE VII

The Great Lakes—Huron, Ontario, Michigan, Erie, and Superior—form the largest freshwater system in the world. Each of the lakes tends to *stratify*, or form layers of warmer and colder water, depending on the season. This is called *seasonal turnover*. In winter, for example, the coldest water in the lake lies just below the surface ice. The water gets progressively warmer at deeper levels. In spring, the sun melts the ice, and the surface water warms. Because the surface water is still cooler than the layers below, the water at the surface sinks to the bottom of the lake, forcing the cooler water at the bottom of the lake to the surface. This mixing, known as *spring turnover*, eliminates the temperature stratification that was established during the winter. In the absence of this thermal layering, wind continues to mix the water to a greater depth, bringing oxygen (O_2) to the bottom of the lake and nutrients to the surface. This results in a relatively even distribution of O_2 throughout the lake. When summer arrives, the lake again becomes stratified, with warm water at the surface, and cold water at the bottom. A narrow zone of water undergoing rapid temperature changes separates these layers. This zone is called the *thermocline*. Cool, fall temperatures cause the lake water to mix again, until the surface begins to freeze and the winter stratification is reestablished.

The stability of the lake's stratification depends on several factors: the lake's depth, shape, and size, as well as the wind and both the inflow and outflow of lake water. Lakes with a lot of water flowing into and out of them do not develop consistent and lasting thermal stratification.

Figure 1 shows an example of lake stratification during the summer.

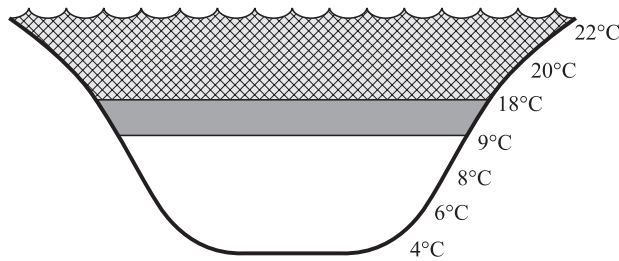
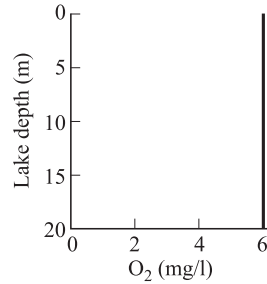


Figure 1 Cross-section of a lake during the summer.

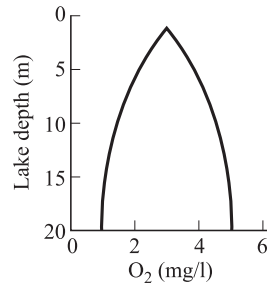
34. According to Figure 1, the temperature of the water below the thermocline is:
- F. higher than the temperature of the water above the thermocline.
 - G. equal to the temperature of the water above the thermocline.
 - H. lower than the temperature of the water above the thermocline.
 - J. equal to the average temperature of the water in the lake.

35. Based on the passage, which of the following best represents O_2 levels in one of the Great Lakes during the spring?

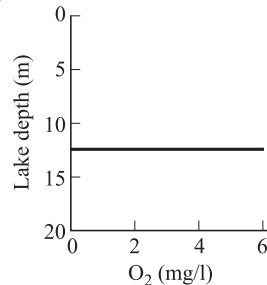
A.



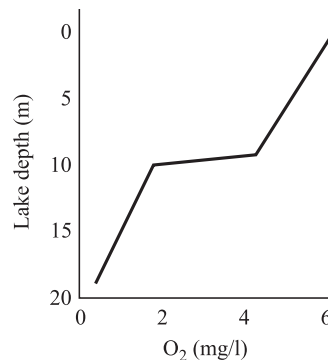
B.



C.



D.



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36. According to the passage, the thermocline is:
- F. established during the winter.
 - G. responsible for bringing nutrients to the surface.
 - H. a zone of constant temperatures.
 - J. a zone of rapidly changing temperatures.
37. According to the passage, Lake Michigan experiences thermal stratification during:
- A. the summer and the winter.
 - B. the summer only.
 - C. the spring and fall.
 - D. the spring only.
38. A small, inland lake, fed by a fast-flowing river was found to have very little thermal stratification. Based on the passage, this is most likely because:
- F. not enough water was flowing into the lake.
 - G. the inflow of water from the river was too high.
 - H. the lake was too shallow to support stratification.
 - J. too much water was flowing out of the lake into the river.
39. According to Figure 1, during the summer, as the depth of the lake increases, the temperature of the water:
- A. decreases suddenly, then gradually increases.
 - B. increases only.
 - C. remains stable.
 - D. decreases only.
40. Based on the passage, the stability of thermal stratification depends on all of the following EXCEPT:
- F. the depth of the lake.
 - G. seasonal turnover.
 - H. the amount of wind.
 - J. water inflow.

END OF THE SCIENCE REASONING TEST.
STOP! IF YOU HAVE TIME LEFT OVER, CHECK YOUR WORK ON THIS SECTION ONLY.

WRITING TEST PROMPT

DIRECTIONS: This test is designed to assess your writing skills. You have thirty minutes to plan and write an essay based on the stimulus provided. Be sure to take a position on the issue and support your position using logical reasoning and relevant examples. Organize your ideas in a focused and logical way, and use the English language to clearly and effectively express your position.

When you have finished writing, refer to the Scoring Rubrics discussed in the Introduction (page 4) to estimate your score.

Some high schools in the United States have a policy of random searches of student lockers for illegal items such as drugs and weapons. Some faculty and staff believe that the searches are necessary in order to protect student safety. Other teachers and administrators believe that the searches infringe on students' privacy and that searches should only be conducted when there is a reason to suspect that an individual student may have something illegal in his or her locker. In your opinion, should high schools conduct random searches of student lockers to search for illegal items?

In your essay, take a position on this question. You may write about one of the points of view mentioned above, or you may give another point of view on this issue. Use specific examples and reasons for your position.

ANSWER KEY**English Test**

1. D	21. A	41. C	61. D
2. F	22. H	42. J	62. G
3. A	23. D	43. A	63. A
4. H	24. G	44. F	64. H
5. C	25. C	45. C	65. A
6. G	26. J	46. H	66. H
7. D	27. B	47. D	67. D
8. G	28. H	48. F	68. G
9. C	29. A	49. C	69. C
10. J	30. G	50. J	70. J
11. B	31. A	51. A	71. B
12. F	32. G	52. G	72. J
13. B	33. C	53. D	73. B
14. F	34. H	54. H	74. F
15. B	35. B	55. C	75. C
16. J	36. F	56. G	
17. A	37. C	57. B	
18. H	38. H	58. F	
19. B	39. A	59. D	
20. J	40. F	60. J	

Mathematics Test

1. D	21. C	41. E
2. G	22. G	42. F
3. B	23. C	43. D
4. G	24. F	44. G
5. C	25. E	45. A
6. F	26. G	46. J
7. E	27. B	47. B
8. K	28. F	48. H
9. A	29. B	49. D
10. J	30. G	50. J
11. D	31. C	51. D
12. G	32. F	52. K
13. E	33. C	53. A
14. F	34. J	54. H
15. C	35. D	55. C
16. K	36. H	56. G
17. A	37. B	57. C
18. H	38. J	58. F
19. B	39. D	59. A
20. K	40. K	60. G

Reading Test

1. C	21. C
2. J	22. J
3. B	23. C
4. H	24. F
5. D	25. D
6. G	26. G
7. D	27. B
8. J	28. J
9. A	29. A
10. H	30. F
11. C	31. B
12. F	32. F
13. D	33. D
14. G	34. G
15. A	35. C
16. H	36. H
17. A	37. B
18. J	38. F
19. D	39. D
20. G	40. J

Science Reasoning Test

1. B	21. D
2. H	22. H
3. C	23. B
4. F	24. F
5. A	25. B
6. H	26. H
7. B	27. C
8. G	28. G
9. D	29. D
10. J	30. G
11. A	31. D
12. J	32. F
13. D	33. B
14. F	34. H
15. C	35. A
16. G	36. J
17. B	37. A
18. J	38. G
19. C	39. D
20. G	40. G