FULL-LENGTH PRACTICE TESTS 11

English Test

TIME: 35 minutes for 50 questions

DIRECTIONS: Following are five passages with underlined portions. Alternate ways of stating the underlined portions come after the passages. Choose the best alternative; if the original is the best way of stating the underlined portion, choose NO CHANGE.

The test also has questions that refer to the passages or ask you to reorder the sentences within the passages. These questions are identified by a number in a box. Choose the best answer and shade in the corresponding oval on your answer sheet.

Passage 1

Food Trends
by Joel Shapiro

Recently, it has been a current trend in the food service industry to decrease fat content and sodium. This trend, which was spearheaded by the medical community as a method of fighting heart disease, has had some unintended side effects obesity and heart disease — the very thing the medical community was trying to fight.

Fat and salt are very important parts of a diet. It is required to process the food that we eat, to recover from injury, to stay hydrated, and for several other bodily functions. Fat and salt are required parts of diet. When fat and salt are removed from food, the food tastes as though it's missing something. As a result, people will eat more food to try to make up for that missing element. Even worse, people tend to compensate by eating more junk food. Such as potato chips, soda, candy, and doughnuts, my favorite. Junk food is full of fat and salt; by eating more junk food people will get more salt and fat than they need in their diet.

There is another interesting side effect of removing salt and fat from food — less flavor. It took me several years to figure out why the food that I was getting at restaurants had lesser (6) flavor as time went by but the food that I prepare at home continued to have strong flavors. I discover (7) the answer in a bowl of chili. I had been making chili (my family's favorite dish and one that I serve at least once a week) with low-fat meats, following the current trend toward low-fat food. One day at the grocery, the store had run out of the low-fat meat, so I bought some meat with much higher fat content than I normally purchase. The chili I made from this meat tasted much better than the previous chili. (8)

From that point on, I experimented, (9) with ingredients that were not low in fat. The resulting dishes were much more satisfying than before. In addition, I found that people I served them to didn't eat as much. After talking at several, (10) I discovered that they found the meals much more satisfying than they had in the past. Therefore, they ate less. And, as a result, ending up eating less (11) calories than they had with the low-fat meals.

[1] Salt is a more difficult ingredient to judge. [2] If there is too much, the meal doesn't taste good, and diners will push the food aside uneaten. [3] If there isn't enough, the dish tastes like something is missing and diners will eat more food to obtain enough salt. 12

Salt also helps bring out the flavors of the dish. The trick is to find just the right amount. I generally do this by tasting. As I cook, I taste the sauce or food that I am preparing. If it tastes like "something is missing," then I add a little salt. I stir it in, give it a few minutes and then try it again. Eventually, it tastes perfectly. 13

Fat and salt enhance the way foods taste and are important parts of any diet. Including an adequate amount of both of them in your meals will reduce your urge to snack between meals (often on unhealthy, empty-calorie treats) and will improve the flavor of your food. However, be careful not to go overboard. Moderation is key; it's possible to consume too much of both, being not good for the 14 health. 15

1. **(A)**NO CHANGE
   (B) Recently, there has been a current trend in the food service industry
   (C) A recent trend in the food service industry has been
   (D) Recently, having trended toward in the food service industry

2. **(F)** NO CHANGE
   (G) effects, including obesity
   (H) affects, such as obesity

(J) affects: obesity

3. **(A)**NO CHANGE
   (B) It's
   (C) Both are
   (D) They were

4. **(F)** NO CHANGE
   (G) Fat, and also salt, are required parts of diet.
   (H) When on a diet, fat and salt are required.
   (J) DELETE the underlined portion.

5. **(A)**NO CHANGE
   (B) food, including potato chips, soda, candy, and doughnuts, my favorite
   (C) food, such as potato chips, soda, candy, and, my favorite doughnuts
   (D) food, potato chips, soda, candy, and doughnuts are my favorites

6. **(F)** NO CHANGE
   (G) less and less
   (H) lesser and lesser
   (J) the least

7. **(A)**NO CHANGE
   (B) discovering
   (C) discovered
   (D) had discovered

8. **(F)** NO CHANGE
   (G) the previous chili's
   (H) the flavor of the previous chili

(J) the first one's

9. **(A)**NO CHANGE
   (B) on; I experimented,
   (C) on, I experimented;
   (D) on, I experimented

10. **(F)** NO CHANGE
    (G) After talking with any number of them,
    (H) After talking to several of them,
    (J) After talking afterwards to several people,

11. **(A)**NO CHANGE
    (B) As a result, they are eating less food and consuming less
    (C) As a result, they consumed less
    (D) And, as a result, they consumed fewer

12. The writer wants to add the following sentence to this paragraph:

    Although it has no calories, salt can affect how much food people consume.

    This sentence would most logically be placed:

    (F) before Sentence 1.
    (G) after Sentence 1.
    (H) before Sentence 3.
    (J) at the end of the paragraph.

13. **(A)** NO CHANGE
    (B) tastes well
    (C) tastes perfect
    (D) perfectly tastes

14. **(F)** NO CHANGE

(G) which isn't healthy

(H) not being too healthy

(J) and that is for the health not good

15. The author wants to emphasize the importance of having the right amounts of fat and salt and discourage against eliminating them altogether by adding this sentence to the end of the last paragraph:

However, if you eat no salt or fat, you are likely to overeat and become obese.

Should the author include this addition?

(A) No, because the addition would be redundant.

(B) No, because the sentence contradicts information that the author states in the first paragraphs of the passage.

(C) Yes, because the sentence provides information that the reader needs to know and cannot find elsewhere in the passage.

(D) Yes, because the paragraph does not adequately conclude the passage without the inclusion of the sentence.

Passage 2

Native American Government

[1] The question has been asked how Native American tribes, whom govern themselves do so.[16] [2] Most tribal governments are organized democratic,[17] that is, with an elected leadership. [3] The governing body is referred to as a council, it is[18] composed of persons elected by vote of the eligible adult tribal members. [4] The presiding official is the chairman, although some tribes use other titles, such as principal[19] chief, president, or governor. [5] An elected tribal council, recognized as such by the Secretary of the Interior and the people working for him, have[20] authority to speak and act for the tribe and represent it[21] in negotiations with federal, state, and local governments. 22

Just what do tribal governments do? They generally define conditions of tribal membership, regulate domestic relations of members, prescribe rules of inheritance for reservation property not in trust status, levy taxes, regulate property under tribal jurisdiction, control conduct of members by tribal ordinances, and they administer[23] justice.

What role do Native Americans have in the American political system? They have the same obligations for military service as do other U.S. citizens. They have fought[24] in all American wars since the Revolution, they served on both sides in the Civil War. Eli S. Parker, a Seneca from New York, was at Appomattox as an aide to General Ulysses S. Grant when Lee surrendered, and the unit of

Confederate Brigadier General Stand Watie, a Cherokee, was the last to surrender. It was not until World War I that Native American's demonstrating (25) patriotism (6,000 of the more than 8,000 Native Americans who served in the war were volunteers) moved Congress to pass the Indian Citizenship Act of 1924. One reads in your history books (26) about using the Navajo Marines of their language (27) as a battlefield code, the only such code (28) that the enemy could not break. Today, one out of every four Native American men is a military veteran, and 45 to 47 percent of tribal leaders is a military veteran. (29) 30

16. **(F)** NO CHANGE
    (G) tribes go about governing themselves
    (H) tribes who go about governing them and do so
    (J) tribes, who, governing themselves, do so

17. **(A)** NO CHANGE
    (B) democratically
    (C) in a way that is democratic
    (D) OMIT the underlined portion.

18. **(F)** NO CHANGE
    (G) council; however, it is
    (H) council, but is
    (J) council and is

19. **(A)** NO CHANGE
    (B) such as, principal
    (C) like principle
    (D) like, principle

20. **(F)** NO CHANGE
(G) had
(H) has
(J) having

21. **(A)** NO CHANGE
(B) be representing it
(C) to represent them
(D) representing them

22. The most logical and coherent location for Sentence 4 would be:
(F) where it is now.
(G) before Sentence 1.
(H) after Sentence 1.
(J) after Sentence 5.

23. **(A)** NO CHANGE
(B) and administering
(C) and administer
(D) and to be administering

24. **(F)** NO CHANGE
(G) They did fight
(H) It has fought (the tribal)
(J) Fighting

25. **(A)**NO CHANGE
(B) when the Native Americans, who demonstrated
(C) that the Native Americans' demonstrated
(D) when the Native Americans'

26. **(F)** NO CHANGE
(G) in history books
(H) in their history books
(J) in one of their history books

27. **(A)**NO CHANGE
(B) the use by Navajo Marines of their language
(C) Navajos using their Marine language
(D) the Navajo Marines language use

28. **(F)** NO CHANGE
(G) only code such
(H) only code, such
(J) only such code,

29. **(A)**NO CHANGE
(B) is military veterans
(C) are military veterans
(D) is a veteran of the military

30. Given that the author was supposed to write an essay that predicts the roles Native Americans will play in future wars, does this passage fulfill this goal?
(F) No, because the primary purpose of the passage is to explain the responsibilities of tribal governments.
(G) No, because the passage discusses only current and past events.
(H) Yes, because the passage is mostly about the contributions of Native Americans to the military.
(J) Yes, because the most logical topic for the next paragraph of the passage would be how Native Americans will contribute to future wars.

Passage 3

A Trip to Lassen

Every summer, my family takes a car trip to one of this countrys great national parks. Last summer we had the pleasure[31] of spending several days in Lassen Volcanic National Park in Northern California. As[32] we were there, the park ranger gave us a lot of interesting information about the park's geology, biology, and history.

[1] Apparently, the theory of plate tectonics claim that as[33] the expanding oceanic crust, which is the thinnest of the two types, forces its way under the continental plate[34] margins; it pierces[35] deeply enough into the hot areas of the earth to liquefy again. [2] Compartments of molten rock (called magma)

result. [3] About half a million years ago, Mount Tehama gradually building up here throughout countless eruptions. [4] These become the feeding chambers for volcanoes, like the one that created Mount Tehama. [5] Mount Tehama fell long before Lassen Peak came into existence, but it's caldera ruptured, which is why there's no big lake there now. 40

The park's flora is a mix of species that are native to the Sierra Nevada range from varieties that emanate from the Cascade Mountains. The result is that the park in all areas boast more than 700 plant species, which is amazing when you consider that nearby Mount Shasta has less than 500. 43 Around two thirds of the species are at the northern limit of their range in the park, which means that about one third of the species, those from the Cascades, are at their southern limit.

The park ranger told us that historians have a difficult time determining what life was like for those who occupied the Lassen area long ago. They do know, though, that it was a meeting point for four groups of Native Americans; Atsugewi, Yana, Yahi, and Maidu. Its harsh weather conditions, generally high elevation, and itinerate deer populations made the Lassen area pretty much uninhabitable in the winter months. Therefore, Native American groups probably just lived there during warmer months when they could better engage in hunting and gathering. 45

31. **(A)** NO CHANGE
(B) one of these countrys' great national parks
(C) one of this country's great national parks

(D) one of this country's great national park's

32. **(F)** NO CHANGE
(G) Whenever
(H) While
(J) During our time while

33. **(A)**NO CHANGE
(B) claim when
(C) claims that whichever
(D) claims that as

34. **(F)** NO CHANGE
(G) crust, the thinnest of the two types of crust
(H) crust which is the thinner type
(J) crust, which is the thinner of the two types of crust,

35. **(A)**NO CHANGE
(B) margins, it pierces
(C) margins; however, it pierces
(D) margins and piercing

36. **(F)** NO CHANGE
(G) resulting
(H) results
(J) resulted

37. **(A)**NO CHANGE
(B) was built up here, going through countless
(C) had builded up here through uncounted
(D) built up here through countless

38. **(F)** NO CHANGE
(G) as
(H) as if
(J) likely

39. **(A)** NO CHANGE
(B) but its caldera
(C) and Tehama's caldera
(D) therefore, the caldera that it had

40. To make this paragraph more logical and coherent, Sentence 4 should be positioned:
(F) where it is now.
(G) after Sentence 2.
(H) before Sentence 1.
(J) after Sentence 5.

41. **(A)**NO CHANGE
(B) and
(C) form
(D) to

42. **(F)** NO CHANGE
(G) boasts and has
(H) boasts over
(J) have more than

43. At this point in the essay, the author is considering adding a specific description of the kinds of plants that grow on Mount Shasta. Should the author make this addition?
(A) No, because the essay is about Lassen Volcanic Park rather than Mount Shasta.

(B) No, because Mount Shasta has fewer species of plant life than Mount Tehama.

(C) Yes, because the main topic of the paragraph is a discussion of plant species.

(D) Yes, because it is always a good idea for a writer to provide many specific details in an essay.

44. **(F)** NO CHANGE

(G) of Native Americans: Atsugewi,

(H) of Native Americans, these are Atsugewi,

(J) that are comprised by Native Americans — Atsugewi,

45. Which of these best describes the function of the last paragraph?

(A) It summarizes the information discussed in the previous paragraphs.

(B) It presents a personal opinion that contradicts information that the author presents at the beginning of the passage.

(C) It introduces a topic not previously discussed in prior paragraphs.

(D) It supports the author's hypothesis that the Lassen area is only inhabitable during the winter months.

Passage 4

One Boy's Role Model

As a young boy, I having dreamed of following
46
in the footsteps of explorer Richard Halliburton,
who it is fair to say has been my hero since
47
childhood. Let other boys dream of being Viking
48
warriors or knights in shining armor. I have always
wanted to be a world-famous explorer, going
places no one has ever been or returning to places
where civilization flourished long ago.

Richard Halliburton lived the life I always
wanted to live, and he wrote about it in ways that
motivated me as a youngster and still have the
power to thrill me as a man. I am especially
captivated by his stories of his trip to Pompeii,
49
which he calls the city that rose from the dead. A
few miles past Naples, Italy along the slopes of
Vesuvius, this city is found. It is much the same as
50
it was before the eruption in A.D. 79, with wine jars
still lying on the ground and ruts in the streets
from the passing chariots still visible.

46. **(F)** NO CHANGE
(G) As a young boy, I dreamed of
(H) As a young boy, I am dreaming of
(J) Dreaming, as a young boy, of

47. **(A)**NO CHANGE
(B) whom, it is fair to say,
(C) who, it's fair to say
(D) of whom it is fair to say,

48. **(F)** NO CHANGE
(G) Let other boy's dream
(H) Dreams that other boys have
(J) Other boys dream,

49. **(A)**NO CHANGE
(B) fascinated at
(C) captivated about
(D) apprehended with

50. **(F)** NO CHANGE
(G) This city is found a few miles past Naples, Italy, along the slopes of Vesuvius.
(H) Located a few miles past Naples, Italy, along the slopes of Vesuvius, you find this city.
(J) Along the slopes of Vesuvius, a few miles past Naples Italy is where this city is located.

Reading Test

TIME: 40 minutes for 36 questions

DIRECTIONS: Each of the four passages in this section is followed by ten questions. Answer each question based on what is stated or implied in the passage and shade the corresponding oval on your answer sheet.

Passage I — Prose Fiction

This passage is excerpted from the novel, *The Twelve*, by William Gladstone.

Line

Max knew from the beginning that there was a purpose to his life and an important destiny that he had been called upon to fulfill. This understanding wasn't something tangible, however. There was a voice in his head that spoke of a reason for which he had been born, yet there were no words — just colors and powerful vibrations. His inner world, this secret playground, was filled with beauty and elegance, and it made Max very happy.

He seemed to be able to summon knowledge on any subject but had a particular attachment to the art of mathematics and exhibited an uncanny ability and proficiency with numbers, which constantly swirled around in his mind, vibrating in a multitude of colors. Even before he could walk, he was able to multiply triple-digit numbers in his head.

And this talent adopted a three-dimensional component. He imagined boxes placed vertically and horizontally and at tangents without end. He envisioned each box as the universe complete unto itself and would contemplate the shape, direction and lack of beginning or end within each box or collection of boxes.

Such exercises afforded him pleasure, as did most things in life. However, there remained one constant reminder that all was not perfect.

Louis.

Despite the violence he experienced at the hands of his older brother, Max considered Louis his best friend. Their uncanny link caused Max to feel great empathy for his sibling, and it seemed as if they both remembered the blissful paradise that had been the womb.

From the moment of his birth, Max accepted that wherever he was, he was exactly where he was supposed to be in life and was completely at peace with the idea.

Louis, on the other hand, was angry that he had been forced to leave that perfect state of being and that the world had greeted him with a stranglehold. Thus, he had come into this world kicking and screaming and remained in a constant state of revolt.

That Max felt no such thing angered Louis even more, and he was determined to make his brother's life as miserable as his own by virtue of force and fear. Even as toddlers, Louis would attack Max, pinning him to the floor and choking him, and then retreat as soon as Max started to cry. When the adults came running, he had achieved a safe distance, and they never realized the level of the violence. Since Max couldn't express himself, they remained utterly ignorant.

Eventually Max learned to play dead. He found it otherwise impossible to resist, since Louis was filled with such superhuman strength when enraged that it would take more than one adult to subdue him, had they even been aware of the need.

And despite his inherent inclination to be optimistic, Max found that the constant attacks began taking their toll. He never felt safe at home and knew that, whatever successes he achieved at school, or in any aspect of life, he would suffer for it.

As the attacks increased, he seriously considered ending his life in order to escape his tormentor.

At the age of seven, he contemplated stabbing himself in the stomach with a butter knife. While in his secret, inner world, he had seen the potential for his existence and was excited for the possibilities that lay ahead, the outer world presented him with a very large, unavoidable obstacle.

His decision made, he picked up the knife.

Yet as he pushed the soft-edged blade into his tummy, he remembered the quiet, inner voice from early infancy. So he put the knife aside, realizing in

that moment that he had a purpose — a true mission — and even though there might be obstacles in his path, he would have the courage to face whatever came his way.

Once he'd learned how to escape his brother's choke holds.

As a toddler, despite his lack of coherent speech, Max exhibited leadership qualities by taking charge of any group.

As he grew, he excelled in every subject at school and had real joy in learning. He was very good in sports and at twelve years old was Westchester County's fastest runner in the fifty-yard dash. Max joked that it was running away from Louis that had led him to become such a fast runner.

When he graduated from eighth grade, he was valedictorian, president of the student council and captain of the football, wrestling and baseball teams. He had an extraordinary sense of anticipating where the ball or opponents might be headed, he always seemed to be in the right place at the right time, and the idea of making an error never occurred to him.

He expected himself to be perfect in everything he did . . . and so, he was. Yet these expectations didn't yield the anxiety experienced by most children.

There was no question that he was loved by his parents, and thanks to his father's success, he had material abundance. So, despite the torments leveled in his direction by his brother, Max managed to survive his early adolescence.

1. Which of the following best expresses the main point of the first paragraph (Lines 1–10)?

(A) Max lived in a constant state of optimism and positive thinking.

(B) Max thought in colors and vibrations rather than in prose.

(C) Max recognized that his thought process was different from others.

(D) Max knew he was put on this earth for a reason, and while he had yet to determine exactly what that reason was, he was comforted by it.

2. The word *tangible,* as it is used in Line 4, most likely means:

(F) vague or elusive.

(G) concrete.

(H) affirmative.

(J) changeable.

3. Throughout his early adolescence, Max exhibited natural talent in all of the following areas EXCEPT:

(A) mathematics.

(B) track.

(C) gymnastics.

(D) football.

4. The following selection that best summarizes the passage as a whole is:

(F) Max was able to overcome the most troubling obstacle in his life, his brother Louis, and become an overachiever despite the hardships he'd suffered at his brother's hands.

(G) Max lived a life plagued by feelings of inadequacy as a result of the cruelty he suffered growing up alongside Louis.

(H) Max's ability to hide the traumas in his home life enabled him to excel academically and through sports.

(J) Max was intellectually superior to his peers from a very early age and suffered socially as a result.

5. The author would most likely say that Max thought about ending his life because:

(A) his failure to/ be able to communicate verbally with his parents left him feeling he needed to take drastic measures to call attention to Louis's abuse.

(B) the hardships he suffered at the hands of his brother seemed impossible to overcome despite his belief that he held a special purpose in this world.

(C) he knew almost from birth that he was drastically different from his peers, and the thought of spending his whole life feeling like an outsider was too much to bear.

(D) he felt that if he didn't take his own life, Louis would do so for him and he no longer could stand living in fear.

6. When the author refers to *exercises* in Line 24, he means:

(F) using his mind to position imaginary shapes.

(G) rudimentary calisthenics.

(H) multiplying six-digit numbers in his head.

(J) playing dead in front of Louis.

7. The author feels that Max exhibited leadership skills in his early years by:

(A) exhibiting a penchant for empathizing with others.

(B) showing an appreciation for those he didn't necessarily get along with, such as his unexplainable fondness for his brother Louis despite his cruel nature.

(C) approaching obstacles in his life in a calm, organized manner.

(D) demonstrating he could take charge of a group.

8. The author would most likely say that Max differed from most children his age in all but which of the following ways?

(F) He desperately yearned for the approval of his parents and teachers.

(G) He failed to speak throughout the majority of his childhood.

(H) He was unaffected by the high expectations adults placed on him.

(J) He felt from birth onward that he was exactly where he was supposed to be in life.

9. In Lines 70–71, when the author says, "the outer world presented him with a very large, unavoidable obstacle," he is most likely referring to:

(A) Louis.

(B) Max's unmatchable intellect.

(C) Max's lack of communication skills.

(D) society as a whole.

10. Which of the following best describes Max's progression throughout the passage?

(F) He spent his early years living in near-constant fear but devoted his later youth to instilling fear in others.

(G) He began life socially inept and was able to overcome struggles and excel in a variety of social situations.

(H) He lacked self-esteem throughout his early childhood but then became downright narcissistic as the years progressed.

(J) He spent his early years in fear of his cruel older brother but was later able to capitalize on the experience.

Passage II — Social Science

This passage is adapted from *How to Develop Self-Esteem in Your Child: 6 Vital Ingredients*, by Dr. Bettie Youngs.

What is the work of childhood? Each stage of a child's development presents its own set of tasks and demands, all focused on gaining self-knowledge or selfhood. The work of each stage is pretty well-defined.

Until the age of two, a child primarily views himself as part of his mother (or father, if he is the primary caretaker). Upon reaching two, he develops the ability to be aware that he is really separate from her. This situation presents him with the task of establishing autonomy — separateness. The two words that best describe his new-found selfhood, that he is in fact a separate person, are "no" and "mine." Possession is the tool he uses to enforce that sense of separate self.

Having realized his separateness, the three-year-old goes on to master his environment. Mastery plays an important role in his perception of self. It influences his feelings of being capable or not capable. His need for success in his endeavors at this stage is crucial. He labors over each of his accomplishments. He is slow and methodical and takes forever to do each task. Needing feedback to know if he has been successful, he strives for recognition of these achievements. ("Watch me, Mommy! Watch me, Mommy!") That he has something to offer nurtures his sense of competence and proves his value.

Parents are the name of the game for the five-year-old. At this age, the mother is the center of the child's world. He not only wants to please her, but he also wants to be near her, wants to talk with her, wants to play with her, and wants to help her around the house. The five-year-old's adoration of his parents is unquestionably heartwarming. The result is almost totally parent-pleasing behavior. In his determination to do everything just right, he'll ask permission for the simplest thing, even when he needn't; and he will then beam with pleasure when the parent smiles and gives permission.

Age six can be described as the stage of "me-ness." Self-centeredness comes before other-centeredness. While children were in the preschool stage, they discovered that they were separate from their parents, although they still kept their parents as the center of their existence. At six, they must shift the focus from their parents to themselves. They now place themselves at the center of their world instead of parents or others. Although they may appear to be excessively self-centered and unconcerned with the needs and feelings of others, this is an important milestone in their development. They are now ready to undertake the task of being receptive to their own interests and attempting to understand them.

At age 16, it is not uncommon for a child to experience feelings of being confused, embarrassed, guilty, awkward, inferior, ugly, and scared, all in the same day. In fact, a teenager can swing from being childish and petulant to being sedate, or from acting rational to irrational, all in the same hour. It's a time of confusion and uncertainty. The goal is to experience intimacy; he needs to belong. This is a time of duality. The 16-year-old wants to be with others, yet he wants to be alone; he needs his friends, but he will sabotage them if they appear to outdo him; he'll root for a friend out loud, but he'll secretly wish for his friend's failure. Age 16 is a time when he wants total independence, but he is not capable of it. He doesn't really want to live without his parents, although he believes that they are roadblocks hindering his life.

The final stage of development in childhood is establishing total independence. In changing from being dependent on others to being self-dependent, children confront some pretty big (and frightening) issues. They have three tasks. Their first task is to determine vocation. A child needs to ask what he is going to do with his life. Underlying this task is the self-esteem need to be somebody, to experience positive feelings of strength,

power, and competence. Second, he needs to establish values. The goal is to sort out his own values and to decide which ones to keep and which ones to discard. Following this step is the only way that he can develop integrity. Perhaps most striking is his need to establish a workable and meaningful philosophy of life. Reevaluating his moral concepts will mean searching for his own personal beliefs, complete with facing religious, ethical, and value-laden ideologies. Developing personal convictions will be influenced by his level of self-esteem, especially if a conflict exists among what he believes, what his family believes, and what his friends find acceptable. Third, he needs to establish self-reliance.

11. The author's primary purpose in writing this passage is to:

(A) show that early childhood learning is important because it provides the foundation for life.

(B) analyze the causes behind low self-esteem in children.

(C) denounce child psychologists.

(D) discuss the various behaviors associated with the ages of children.

12. According to the author, the ultimate goal of children is to gain:

(F) recognition.

(G) selfhood.

(H) praise.

(J) competence.

13. The author uses the comment, "Watch me, Mommy! Watch me, Mommy!" to make the point that three-year-olds:

(A) recognize that they are individuals, separate from their parents.

(B) do tasks in order to please their parents.

(C) need outside acknowledgment of their accomplishments at a specific age of development.

(D) are prone to repeating themselves.

14. Which of the following is another way of stating, “Parents are the name of the game” (Line 32)?

(F) Parents design games and activities to entertain and stimulate their children.

(G) The names parents give their children determine their sense of self-worth.

(H) Parental gamesmanship influences children’s development.

(J) Parents are of prime importance to their children.

15. You may infer from the fifth paragraph (Lines 44–58) that the author considers a lack of sensitivity in six-year-olds:

(A) abnormal and rare.

(B) cute at that age but unacceptable in adults.

(C) precocious because such egotism does not usually begin until the teenage years.

(D) vital in order for children to recognize their separateness from their parents.

16. Which of the following phrases best expresses the idea of the sixth paragraph (Lines 59–76)?

(F) The goal is to experience intimacy.

(G) This is a time of duality.

(H) Age 16 is a time when a child wants total independence.

(J) A 16-year-old believes that parents are roadblocks hindering his life.

17. As used in Line 81, *vocation* means:

(A) rest and relaxation.

(B) geographical area.

(C) romance.

(D) career.

18. The author mentions all of the following as specific tasks in establishing self-dependence EXCEPT:

(F) figuring out what to do in life.

(G) determining moral concepts.

(H) developing self-reliance.

(J) avoiding conflicts between what he believes and what others believe.

19. Which of the following best describes the organization of the passage?

(A) Concepts are discussed in order from most important to least important.

(B) Discussions begin with a presentation of a theory followed by proven facts.

(C) Discussions are ordered chronologically.

(D) The author presents beliefs and then offers predictions.

20. It may be reasonably inferred from the passage that all stages of childhood have as their ultimate goal:

(F) fiscal security.

(G) recognition.

(H) independence.

(J) parental respect.

Passage III — Humanities

Passage A

Line

El Greco received his formal art training in Crete and Italy, but he created his master works in Spain, a country known both for a heightened sense of spirituality and a feeling for the real and tangible. His formal training was a blend of Byzantine mysticism and Italian Mannerism. During his early years he learned from Cretan monks to make flat, mystical icons in the Byzantine tradition. He then studied under Jacopo Bassano and Titian in Venice, but was most influenced by his apprenticeship to Tintoretto, who introduced him to the emotion, force, and strong movement characteristic of Mannerism.

These early influences, coupled with a short stay in Rome where he was stimulated by the work of Michelangelo, supplied the background for the unique style El Greco achieved when he settled in Toledo to paint religious commissions for churches and convents. Not only did El Greco receive diverse artistic training, but he also received a well-rounded spiritual, historical, literary and scientific education from his early humanistic schooling and his eclectic group of friends in cosmopolitan Toledo. His paintings combined his varied artistic and intellectual influences to portray the interplay between the spiritual world and the material

world. Considered by many to be his masterpiece, *The Burial of the Count of Orgaz* reflects his forceful ability to illustrate both worlds.

Because his art was commissioned by churches and because art before the advent of photography served not only aesthetic purposes but also as a record of history, El Greco most often re-created specific religious events. *The Burial of the Count of Orgaz* uses the burial of an esteemed and religious Spanish count, who had died over 250 years before its painting, as a means of portraying the relationship between the heavens and the earth. The brilliantly colored oil-on-canvas painting, measuring 16 feet high and almost 12 feet wide, adorns one wall of the Church of San Tome in Toledo. The painting contains two main settings. The lower scene depicts an ornately robed Saint Stephen and Saint Augustine gently lowering the armored body of Count Gonzalo Ruiz de Toledo into an unseen grave. Surrounding the saints is a group of clergy and noblemen in varying states of worship and mourning. Above this scene hover the inhabitants of heaven.

In contrast to the generally well-defined features of the figures in the lower scene, the figures in the heavens are blurred and ethereal. The dominant figure among the angels and saints is the blue-and-red-clothed Virgin Mary, who appears to be taking petitions from a seemingly endless string of souls. Mary's gaze is not directed at the petitioners, however. She is gently reaching for the soul of the Count of Orgaz that floats toward her in the undefined form of a baby. Alongside Mary, Saint Peter watches, holding the keys to heaven. Above and somewhat at a distance, Christ sits as Lord over the scene. The only connections between the two scenes are the flames that leap from the torches held by the noblemen to the heavenly realm, the cross held by one of the clergy, and the eyes of the priest as he gazes toward the soul of the Count of Orgaz. These connections suggest that the division between heaven and earth, spiritual and material, can only be transcended by the Spirit, symbolized by the flames, by Christ, symbolized by the cross, and, perhaps, through the knowledge of the priest.

Passage B

El Greco painted *The Burial of the Count of Orgaz* in Toledo, Spain, during the years 1586–88. Almost 400 years later, Joseph Beuys, a post–World War II German artist, initiated his artistic career with mixed-media drawings that combined pencil with colored ink or watercolor on creased paper, one of which he entitled *Kadmon*. Although the two artists painted different subjects in different time periods, in different countries, with different media and in different styles, they convey a common meaning.

Like El Greco, Joseph Beuys experienced a variety of personal and artistic influences that inspired him to portray spiritual and earthly themes in his works. Beuys grew up in the tiny German town of Kleve, and his youth was influenced by the small community's predominant Catholicism and its bucolic, natural setting. Unobstructed by the limitations of church sponsorship and freed by modern artistic exploration, Beuys chose more primordial subject matter for his interpretations. According to Christopher Lyon, Beuys's art grew out of his attempts to deal with the chaotic aftermath of World War II, and his early drawings portray both the personal and political schisms that were created by the war's devastation. His early works reveal his vivid imagination and demonstrate what Lyon calls a "mythic approach to his life and art," a technique Beuys continued to explore more fully in his studies at the Dusseldorf Academy of Art and in his unique performance art demonstrations in later years. *Kadmon*, one of Beuys's earliest works, portrays his fascination with the relationship between the mystical and the tangible.

21. All of the following figures are depicted in El Greco's *The Burial of the Count of Orgaz* EXCEPT:

(A) Saint Augustine.

(B) clergy and noblemen.

(C) the Virgin Mary.

(D) Tintoretto.

22. It is reasonable to infer from Passage A that El Greco's artistic education:

(F) resulted from an intricate combination of religious and nonreligious influences.

(G) was largely a product of his formal training at the Dusseldorf Academy of Art.

(H) reached its height during his apprenticeship to Michelangelo.

(J) was more diverse and richer than the artistic educations received by other artists of his day.

23. Passage A states that El Greco painted his most accomplished works in:

(A) Italy.

(B) Crete.

(C) Spain.

(D) Germany.

24. The author of Passage A believes *The Burial of the Count of Orgaz* suggests that the separation between the spiritual and material worlds can be overcome by:

(F) Saint Peter because he holds the keys to heaven.

(G) the flame, which to the author is a representation of the Holy Spirit.

(H) wealth and power as symbolized by the torches held by the noblemen.

(J) the petitions of an endless line of souls.

25. Passage B implies that a significant influence on Beuys's art was:

(A) a blend of Byzantine mysticism and Italian Mannerism.

(B) studying the works of El Greco.

(C) growing up in a small, rural town in Germany.

(D) his Catholic school upbringing.

26. The word *schisms* in Line 96 refers to:

(F) solutions.

(G) religious beliefs.

(H) fascinations.

(J) divisions.

27. As presented in Line 77, "mixed-media drawings" most likely refers to drawings that:

(A) have been reproduced in a variety of different formats.

(B) have been created using more than one artistic technique.

(C) have been displayed in public settings and then reproduced to appear in print publications.

(D) have received mixed critical reviews in the media.

28. Based on Passage A and Passage B, El Greco and Beuys likely used different subjects to showcase the interplay between the heavens and the earth because:

(F) El Greco's vocation was supported by the church, but Beuys was not obligated to create works for a particular sponsor.

(G) Beuys's art was influenced by primeval subjects, whereas El Greco's art was inspired by his passion for history.

(H) the two had differing religious views.

(J) the two came from different socioeconomic backgrounds.

29. The two passages reveal a possible similarity between *The Burial of the Count of Orgaz* and *Kadmon*; both works:

(A) were created using a mixture of media.

(B) explored a common theme.

(C) were created based on influences from similar artists.

(D) portrayed similar subject matter.

30. Compared to Passage B, Passage A provides more information about:

(F) how the artist's work specifically portrays the relationship between the spiritual and material worlds.

(G) the shared themes portrayed in *The Burial of the Count of Orgaz* and *Kadmon*.

(H) how dealing with events in the artist's personal experience directly influences the subject matter in his artwork.

(J) the artist's various artistic influences and the materials he used.

Passage IV — Natural Science

Thrombosis refers to abnormal clotting that causes the blood flow in a blood vessel to become obstructed. Venous thrombosis refers to such an obstruction in a vein, often at some site of inflammation, disease, or injury to the blood vessel wall. The clot (thrombus) may remain fixed at the site of origin, adhering to the wall of the vein. Or the clot (or a fragment of it) may break loose to be carried elsewhere in the circulatory system by the blood. The migratory clot or fragment is then called an embolus.

In pulmonary embolism, the clot or fragment breaks free from its site of origin, usually a deep vein of the leg or pelvis, and is carried by the blood through progressively larger veins into the inferior vena cava, a very large abdominal vein that empties into the right side of the heart. The embolus is pumped through the right side of the heart and into the pulmonary artery, whose branches supply blood to the lungs. Depending on its size, the embolus may pass through the larger pulmonary branches, but may eventually enter a branch too narrow to allow it to pass. Here it lodges, obstructing blood flow to the lung tissues supplied by that vessel and its finer divisions "downstream" from the embolus.

The clinical consequences of pulmonary embolism vary with the size of the embolus and the extent to which it reduces total blood flow to the lungs. Very small emboli cause so little circulatory impairment that they may produce no clinical signs or symptoms at all. In fact, among the estimated 300,000 patients who experience pulmonary embolism each year, the great majority suffer no serious symptoms or complications, and the disorder clears up without significant after effects.

However, in a significant percentage of patients, the pulmonary embolism is massive, sometimes reducing total pulmonary blood flow by 50 percent or more; and the consequences may be grave: seriously strained circulation, shock, or acute respiratory failure. Massive pulmonary embolism causes some 50,000 deaths each year in the U.S.

Certain classes of patients are more likely than others to develop venous thrombosis with its attendant risk of pulmonary embolism. Disorders that increase susceptibility include venous inflammation (phlebitis), congestive heart failure, and certain forms of cancer. Women are more susceptible during pregnancy and during recovery from childbirth than at other times, and those taking

birth control pills appear to be at slightly higher risk than are women who do not. Postoperative patients constitute a high-risk group, particularly following pelvic surgery and orthopedic procedures involving the hip. Any operations requiring that the patient be immobilized for prolonged periods afterward exacerbate the risk of this problem. Among patients recovering from hip fractures, for example, the incidence of venous thrombosis may run as high as 50 percent.

Venous thrombosis can sometimes be diagnosed by the presence of a swollen extremity with some evidence of inflammation or a clot that can be felt when the affected vein is examined. But sometimes venous thrombosis produces no clear-cut clinical signs so that other tests may be needed to confirm the diagnosis.

One such test entails injecting fibrinogen tagged with a radioactive isotope of iodine into the blood. Fibrinogen has a strong affinity for blood clots and is incorporated into them, carrying its radioactive label with it. The clot can then be located with a radiation-sensing device.

Another diagnostic technique, called venography, involves injecting a dye (one that shows clearly on X-rays) into the vein where obstruction is suspected. The X-ray venogram provides very detailed information on the extent and location of the obstruction.

A third technique uses sensitive instruments that measure blood flow in vessels of the extremities to detect any circulatory impairment that may result from thrombosis.

Signs of nonfatal pulmonary embolism may include sudden shortness of breath, chest pain, increased heart rate, restlessness and anxiety, a fall in blood pressure, and loss of consciousness. But clinical symptoms may vary by their presence or absence and in their intensity, and their similarity to symptoms that may result from other disorders can make the diagnosis of pulmonary embolism difficult on this basis alone.

Pulmonary angiography (X-ray visualization of the pulmonary artery and its branches after injection of a radiopaque dye) is the most reliable diagnostic technique, but it is a complex test that cannot be done routinely in all patients. A somewhat simpler test involves injecting extremely fine particles of a radioactively labeled material such as albumin into a vein and then scanning the lungs with a radiation detector while the particles traverse the pulmonary blood vessels.

31. The purpose of the first paragraph (Lines 1–11) is to:

(A) analyze the causes of blood clots.

(B) describe types of blood clots.

(C) predict who is most likely to get a blood clot.

(D) inform the readers of steps to take for the prevention of blood clots.

32. Which of the following best describes the difference between a thrombus and an embolus?

(F) A thrombus is in the lung; an embolus may be anywhere.

(G) A thrombus is usually fatal; an embolus is rarely fatal.

(H) A thrombus remains stationary; an embolus moves within the circulatory system.

(J) A thrombus is larger than an embolus.

33. It is reasonable to conclude from the passage that pulmonary embolism:

(A) may clear up on its own.

(B) is invariably fatal.

(C) is more severe in children than in adults.

(D) may be prevented by following a specific diet.

34. According to the passage, a common origin for a pulmonary thrombosis is in the:

(F) heart.

(G) brain.

(H) leg.

(J) arm.

35. In Line 45, the phrase “attendant risk” refers to:

(A) risks faced by those who aid others.

(B) risks that accompany something else.

(C) minimal, almost nonexistent, risks.

(D) risks that are higher for women than men.

36. The word *exacerbate* in Line 57 means:

(F) reduce.

(G) cure.

(H) exaggerate.

(J) worsen.

Science Test

TIME: 40 minutes for 40 questions

DIRECTIONS: Following are seven passages and then questions that refer to each passage. Choose the best answer to each question and shade in the corresponding oval on your answer sheet.

Passage I

In the pole vault, the pole acts to convert the energy generated by an athlete running down a runway into a force that lifts the athlete over a crossbar. The most advanced vaulters use stiff poles that quickly convert the horizontal energy into the lifting force. Beginning vaulters are not strong, fast, or skillful enough to bend a stiff pole as needed to generate substantial vertical lift. Beginning vaulters must use more flexible poles.

To test the suitability of two materials for use in poles, scientists subjected three miniature poles to two laboratory tests. Pole No. 1, made of fiberglass, is 50 cm long, with a diameter of 1 cm and a mass of 1 kg. Pole No. 2, also made of fiberglass, is also 50 cm long but has a

diameter of 1.5 cm and a mass of 2.25 kg. Pole No. 3, made of carbon fiber, is 50 cm long, 1.5 cm in diameter, and has a mass of 1 kg.

Study 1

Scientists tested the three poles to determine how much force is required to bend the poles to an 85-degree angle. Table 1 shows the results.

Study 2

Scientists bent each pole to an 85-degree angle and then allowed the pole to snap back to a straight position. Table 2 shows the time required for each pole to snap back.

TABLE 1 — Results of Bent-Pole Test

Pole	*Force in Newtons (N)*
1	4.9
2	5.8
3	6.3

TABLE 2 — Results of Snap-Back Test

Pole	*Time in Milliseconds (msec)*
1	733
2	626
3	591

1. According to the results of the two tests, the relationship between the force required to bend a pole and the time needed for the pole to snap back to its regular position is that:

   (A) the greater the force required to bend the pole, the more time required for the pole to snap back.

   (B) the greater the force required to bend the pole, the less time required for the pole to snap back.

(C) for only the fiberglass poles, the greater the force required to bend the pole, the more time required for the pole to snap back.

(D) for only the fiberglass poles, the greater the force required to bend the pole, the less time required for the pole to snap back.

2. On the basis of Study 1, the relationship between pole mass and stiffness is that:

(F) poles with greater masses are stiffer.

(G) fiberglass poles with greater masses are stiffer.

(H) poles with smaller masses are stiffer.

(J) there is no relationship between pole mass and pole stiffness.

3. Which of the following is a controlled variable in this study?

(A) pole diameter

(B) force required to bend poles

(C) time for poles to return to vertical

(D) force generated when poles return to vertical

4. Kinetic energy results from the actual motion of an object, while potential energy is a measure of the energy that results if an object were to move from a certain location. During a pole vault, virtually all the energy is in the form of potential energy:

(F) when the vaulter is running down the runway.

(G) when the pole is bent.

(H) as the pole unbends and sends the vaulter upward.

(J) as the vaulter falls into the pit.

5. Ideally, vaulters like to use long poles because the poles reach closer to the crossbar. If a pole is too long, though, a vaulter has difficulty carrying it down the runway because of its mass. Given these considerations, the material that is best suited for a very long pole is:

(A) fiberglass, because it snaps back relatively slowly.

(B) fiberglass, because it has a relatively high mass-to-volume ratio.

(C) carbon fiber, because it is relatively stiff.

(D) carbon fiber, because it has a relatively low mass-to-volume ratio.

6. On the basis of the entire study, which of the following would be the most appropriate pole for the beginning pole vaulter?

(F) Pole 2

(G) Pole 1

(H) Pole 3

(J) either Pole 2 or Pole 3

7. Suppose a fourth 50-foot pole made of carbon fiber with a diameter of 1.0 cm was tested. Based on the two studies, the force required to bend the pole to an 85-degree angle and time required for this pole to snap back to a straight position from that angle would be closest to which of the following?

(A) A force less than 4.9 N and a time greater than 733 msec.

(B) A force greater than 4.9 N and a time greater than 733 msec.

(C) A force less than 6.3 N and a time greater than 591 msec.

(D) A force greater than 6.3 N and a time greater than 591 msec.

Passage II

A radioactive substance is one that contains atoms with nuclei that change into other types of atomic nuclei. For example, a uranium nucleus can lose two protons and two neutrons and become a thorium nucleus. Atoms of some radioactive substances change more frequently than others. Over time, the rate of change for any substance slows as a greater percentage of atomic nuclei change to a final, more stable state.

Devices can measure the number of atomic changes that take place at a given time. Each of these changes is commonly called a *disintegration*. Table 1 and Table 2 show the disintegration rates for two unknown substances.

TABLE 1 — Substance A Disintegrations

Time (hours)	*Disintegration Rate (millicuries)*
0	200
5	100
10	50
15	25
20	12.5

TABLE 2 — Substance B Disintegrations

Time (hours)	*Disintegration Rate (millicuries)*
0	2,000
4	1,000
8	500
12	250
16	125

8. As time in hours increases, the disintegration rate in millicuries:

(F) increases for Substance A and decreases for Substance B.

(G) decreases for Substance A and increases for Substance B.

(H) increases for both substances.

(J) decreases for both substances.

9. It is reasonable to deduce that after 20 hours the disintegration rate for Substance B will be about:

(A) 0 millicuries.

(B) 12.5 millicuries.

(C) 62.5 millicuries.

(D) 200 millicuries.

10. If Substance A starts with 10,000,000 radioactive atoms, the number of atoms present at 15 hours will be:

(F) 666,667.

(G) 1,250,000.

(H) 3,333,333.

(J) 5,000,000.

11. The disintegration rate of Substance B is 1,500 millicuries:

(A) at about 2 hours.

(B) at exactly 2 hours.

(C) at about 3 hours.

(D) at exactly 3 hours.

12. Given that the half-life of a radioactive substance is the time it takes for half of the radioactive atoms to disintegrate, the substance with the shorter half-life is:

(F) Substance A, because it reaches its half-life after 5 hours.

(G) Substance A, because it will be completely disintegrated after 25 hours.

(H) Substance B, because the disintegration rate fell to half its original value in 4 hours.

(J) Substance B, because it was measured for 16 hours instead of 20.

13. Radioactive substances are potential health hazards because the particles emitted from radioactive substances can damage parts of the human body. Therefore, humans should take great care to limit the amount of radioactivity they are exposed to. Which of the following is safest for a human to handle?

(A) Substance A after 5 hours

(B) Substance A after 20 hours

(C) Substance B after 8 hours

(D) Substance B after 16 hours

Passage III

When sunlight heats the earth's surface, much of that energy is radiated back to the atmosphere. Although some of this re-radiated energy escapes to space, a significant amount of it is reflected back to the earth's surface by molecules in the atmosphere. These molecules — water, nitrous oxide, methane, and carbon dioxide — trap re-radiated energy in the same way that glass in a greenhouse does and warms the earth. Hence, the term "greenhouse effect" has been used to refer to the warming of the earth caused by the gases' keeping heat within the earth's atmosphere.

Scientists agree that the greenhouse effect results in higher temperatures on earth but disagree as to whether recent increases in atmospheric carbon dioxide will lead to undesirable global warming. Two scientists discuss this possibility.

Scientist 1

Ancient ice cores from Antarctica indicate that the concentration of carbon dioxide in the atmosphere and global mean temperatures have followed the same pattern of fluctuations in levels over the past 160,000 years. Therefore, the increase in atmospheric carbon dioxide concentration from 280 parts per million to 360 parts per million that has occurred over the past 150 years points to significant and detrimental climatic changes in the near future. The climate has already changed: The average surface temperature of the earth has increased $0.6°C$ in the past hundred years, with the ten hottest years of that time period all occurring since 1980. Although $0.6°C$ may not seem large, changes in the mean surface temperature as low as $0.5°C$ have dramatically affected crop growth in years past. Moreover, computer models project that surface temperatures will increase about $2.0°C$ by the year 2100, and will continue to increase in the years after, even if concentration of greenhouse gases is stabilized by that time. If the present trend in carbon dioxide increase continues, though, carbon dioxide concentration will exceed 1,100 parts per million soon after 2100, and will be associated with a temperature increase of approximately $10.0°C$ over the present

mean annual global surface temperature.

Scientist 2

The observed increases in minor greenhouse gases such as carbon dioxide and methane will not lead to sizeable global warming. Water vapor and clouds are responsible for more than 98% of the earth's greenhouse effect. Current models that project large temperature increases with a doubling of the present carbon dioxide concentration incorporate changes in water vapor, clouds, and other factors that would accompany a rise in carbon dioxide levels. The way these models handle such feedback factors is not supported by current scientific knowledge. In fact, there is convincing evidence that shows that increases in carbon dioxide concentration would lead to changes in feedback factors that would diminish any temperature increase associated with more carbon dioxide in the atmosphere. The climatic data for the past hundred years show an irregular pattern in which many of the greatest jumps in global mean temperature were too large to be associated with the observed increase in carbon dioxide. The overall increase of $0.45°C$ in the past century is well under what the models would have predicted given the changes in carbon dioxide concentration. As with the temperature models, recent increases in atmospheric carbon dioxide have not risen to the extent predicted by models dealing solely with carbon dioxide levels. The rate of carbon dioxide concentration increase has slowed since 1973. Improved energy technologies will further dampen the increase so that the carbon dioxide concentration will be under 700 parts per million in the year 2100.

14. Which of the following is an assumption made by Scientist 1?

(F) Feedback factors have little effect on the magnitude to which increased carbon dioxide will increase temperature.

(G) Humans will not be able to limit their activities that contribute to rising carbon dioxide levels.

(H) A rise in the global mean temperature of $1.0°C$ is not significant.

(J) Temperature fluctuations will match carbon dioxide changes when carbon dioxide changes are abrupt.

15. A scientific article states that "scientists will soon develop computer models that accurately account for feedback factors." This statement is consistent with:

(A) only the viewpoint of Scientist 1.

(B) only the viewpoint of Scientist 2.

(C) the viewpoints of both Scientist 1 and Scientist 2.

(D) the viewpoint of neither Scientist 1 nor Scientist 2.

16. Which of the following is the most likely reason that the two scientists present different figures for the temperature rise that has occurred over the past hundred years?

(F) It has been difficult to determine the mean global temperature with complete accuracy.

(G) Scientist 2 uses figures that do not take account of the rise in atmospheric carbon dioxide.

(H) Scientist 1 notes that all ten of the hottest years in the last hundred years have come since 1980.

(J) It has not been established that global warming is a threat to the earth.

17. Indicative of rising temperatures, a large block of the Larson B Ice Sheet in Antarctica recently broke off, raising water levels around the world and increasing the vulnerability of coastal areas to flooding. In light of this information, which of the following predictions would be most consistent with Scientist 1's viewpoint?

(A) Feedback factors will retard the future rate of ice sheet disintegration.

(B) The amount of ice that will break off will double with a doubling of atmospheric carbon dioxide.

(C) The breakup of the ice sheet will minimize global warming.

(D) Coastal areas will be more prone to flooding in the next hundred years.

18. Scientists 1 and 2 would most likely agree with which of the following statements about atmospheric carbon dioxide levels?

(F) Increasing carbon dioxide levels affect other factors.

(G) Humans will never be able to stabilize atmospheric carbon dioxide levels.

(H) The rate of increase in carbon dioxide levels will rise throughout the next hundred years.

(J) Carbon dioxide levels are directly linked to temperature.

19. Scientist 1's claim about the significance of increased global temperatures over the past hundred years is most vulnerable to the criticism that:

(A) the carbon dioxide increases that she presents have taken place over the past 150 years.

(B) she does not specify which years since 1980 have been hottest.

(C) she does not specify whether the change in crop growth she cites was caused by an increase or decrease in temperature.

(D) the figures she presents for temperature increases over the next hundred years are greater than the figure she provides for the past hundred years.

20. It is reasonable to infer from Scientist 2 that:

(F) humans will be able to adapt to any problem produced by global warming.

(G) a change in atmospheric water vapor could significantly affect global temperatures.

(H) atmospheric carbon dioxide levels will never reach 1,100 parts per million.

(J) atmospheric carbon dioxide levels will eventually stop increasing.

Passage IV

Angiosperms, or flowering plants, typically produce flowers seasonally. The various angiosperm species produce their flowers at different times of the year. For example, some flowers bloom in early spring, while others bloom in the summer. Research has shown that these flowering plants respond to changes in day length. A cocklebur, for example, does not produce flowers during the time of year that has days longer than 15.5 hours. When the length of day drops below this figure, flowering occurs. This type of flower is known as a short-day (SD) plant. Long-day (LD) plants do the opposite. These plants do not flower until the length of day exceeds a certain critical value. Plants that do not respond to changes in day length are called day-neutral (DN) plants. The following experiments investigate what aspect of changing day length is responsible for the plants' responses.

Experiment 1

Botanists raise both SD and LD plants in a greenhouse under long-day conditions. As expected, the SD plants do not flower, and the LD plants do flower. When a brief period of darkness interrupts a long day, the LD plants continue to flower.

Experiment 2

Scientists raise both SD and LD plants in a greenhouse under short-day conditions. The SD plants flower, and the LD plants do not flower. When a brief flash of light interrupts the long night, the SD plants stop flowering and the LD plants begin to flower.

Experiment 3

Experimenters perform a yearlong study in which they raise both SD and LD plants in several greenhouses. The light/dark cycle corresponds to the day-length changes that occur normally over the course of a year. Daytime temperatures differ in each greenhouse. All SD plants flower at the same time of year. As expected, all LD plants flower at a different time than the SD plants do, but the LD plants all flower at the same time when compared to one another.

Experiment 4

Conditions are identical to those of Experiment 3, except that while daytime temperatures are kept the same across all greenhouses, nighttime temperatures vary. SD and LD plants still flower at different times of the year, but the plants vary considerably as far as when each plant begins to flower. For example, SD plants in greenhouses with warmer nighttime temperatures flower at a different time than do SD plants in cooler greenhouses.

21. Experiment 4 differs from Experiment 3 in that in Experiment 4:

(A) nighttime temperatures in all greenhouses were varied while daytime temperature were kept the same.

(B) daytime temperatures in all greenhouses were varied while nighttime temperatures were kept the same.

(C) daytime temperatures and nighttime temperatures were kept the same across all greenhouses.

(D) daytime temperatures and nighttime temperatures were varied across all greenhouses.

22. On the basis of Experiments 1 and 2, the most critical factor in determining whether SD and LD plants will flower is the:

(F) total number of daytime hours.

(G) total number of nighttime hours.

(H) number of uninterrupted daytime hours.

(J) number of uninterrupted nighttime hours.

23. Cocklebur, an SD plant, and spinach, an LD plant, are both raised on an 8-hour day, 16-hour night cycle. If a brief flash of light is presented in the middle of the 16-hour night, the most likely result will be that:

(A) neither plant will flower.

(B) cocklebur will flower; spinach will not.

(C) spinach will flower; cocklebur will not.

(D) both plants will flower.

24. The variable that the experimenters do not directly control is:

(F) type of plant.

(G) flowering.

(H) amount of light.

(J) temperature.

25. Are the results of Experiments 3 and 4 consistent with the results of Experiments 1 and 2?

(A) No, because Experiments 3 and 4 use a wider variety of plants.

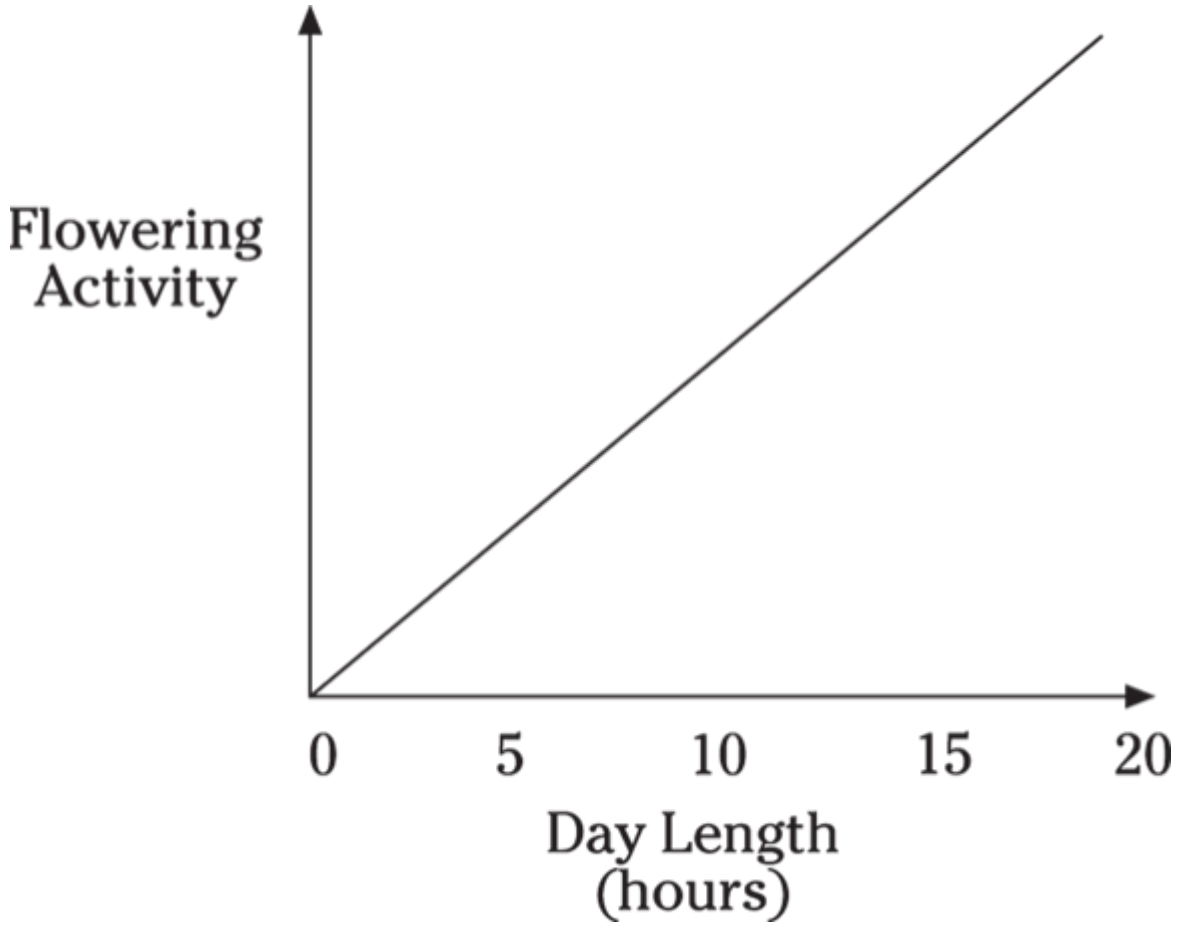
(B) No, because temperature does not change in Experiments 1 and 2.

(C) Yes, because both sets of experiments suggest that the plants respond to a night factor rather than a day factor.

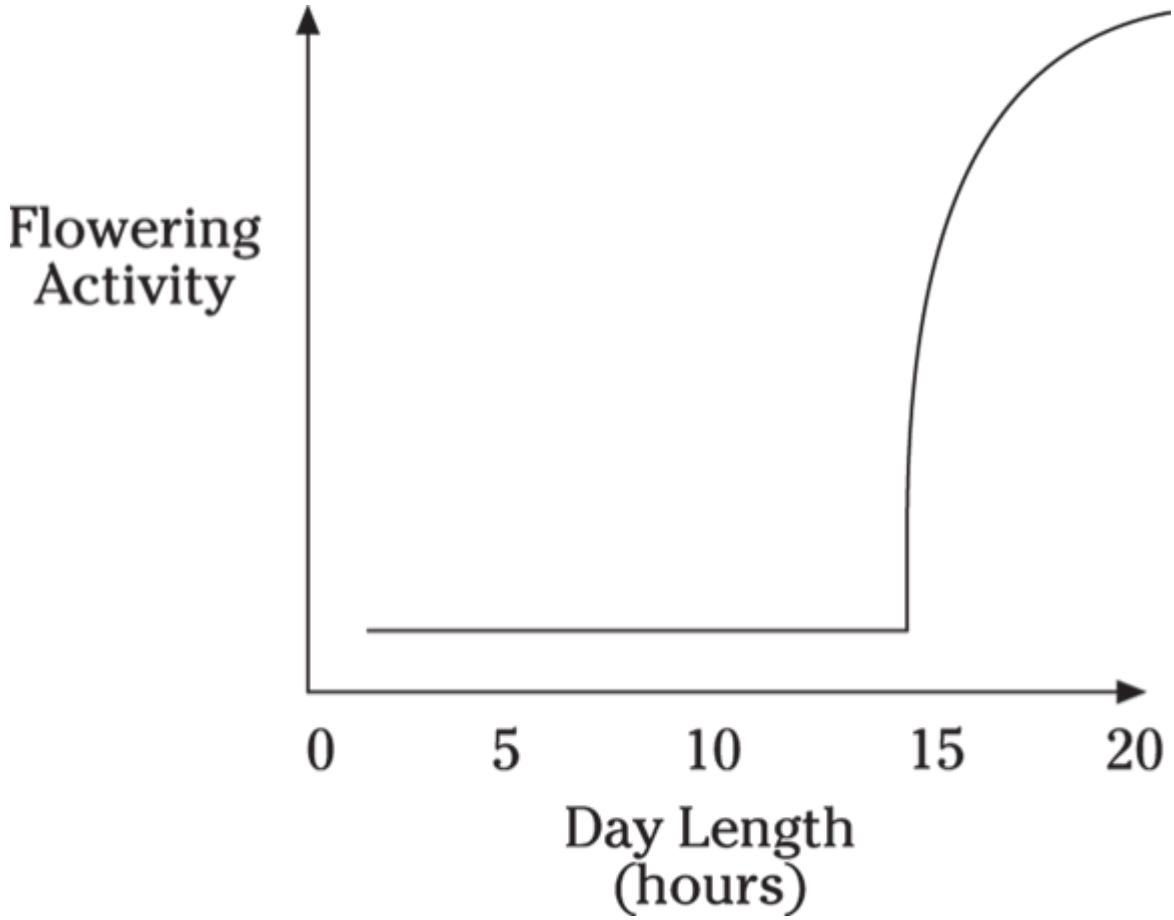
(D) Yes, because both SD and LD plants are used in all the experiments.

26. Which of the following best represents the shape of a line graph that records flowering activity as a function of day length for an LD plant that starts to flower when day length exceeds 15 hours?

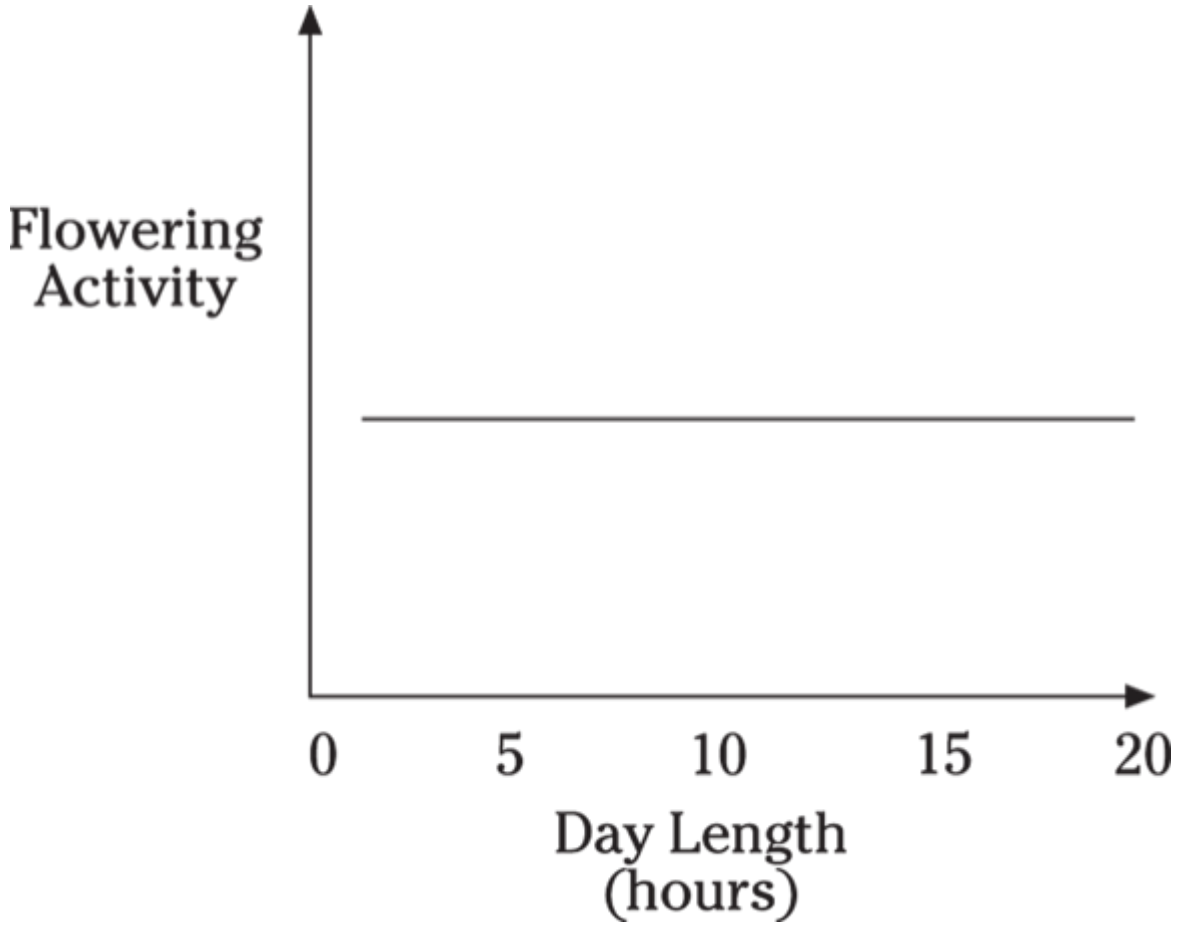
(F)



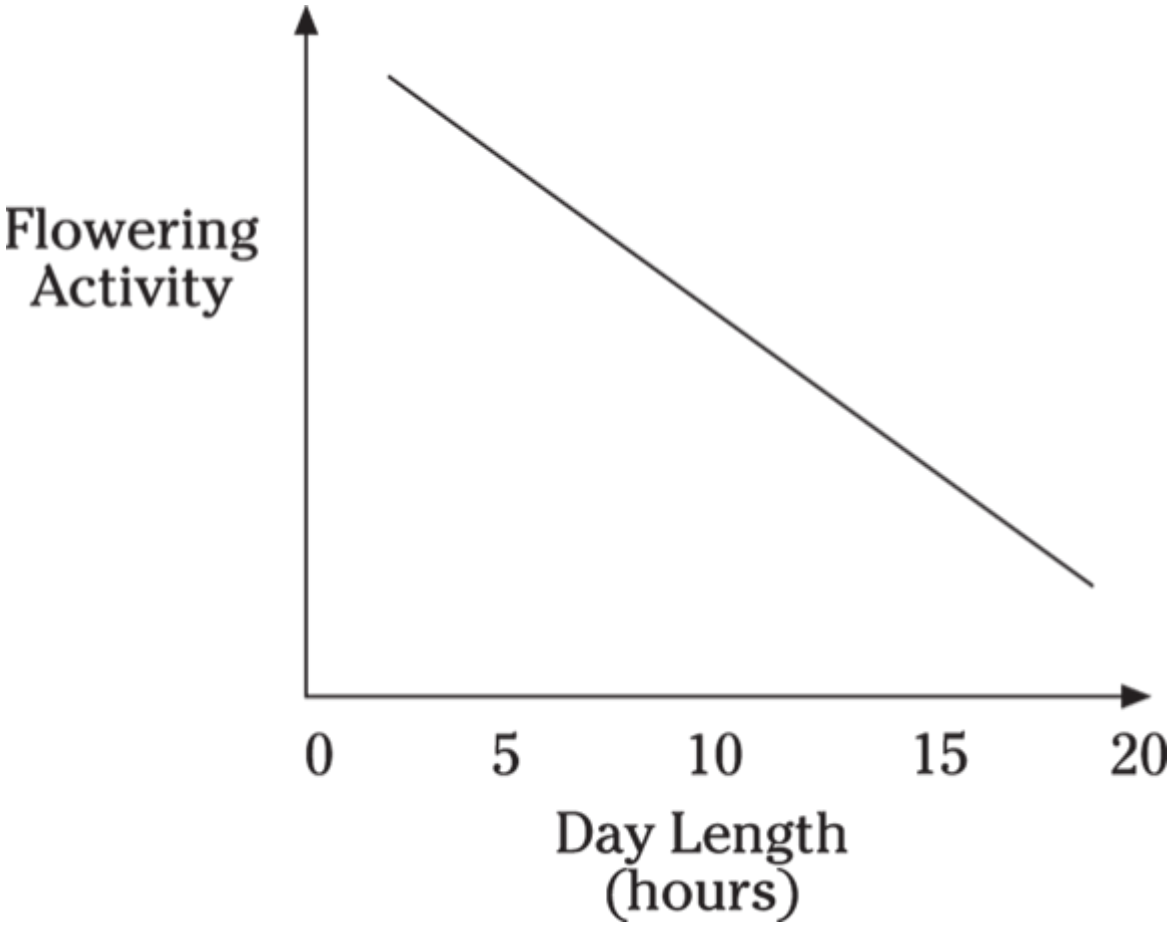
(G)



(H)



(J)



27. Near the equator, day length varies little throughout the year. That is, periods of day and night are virtually equal every 24 hours. Assuming proper soil, water, and other essential conditions, the plant that would most likely flower when grown near the equator would be:

(A) an LD plant that flowers only when the daylight exceeds 14 hours.

(B) an SD plant that flowers only when the day length falls between 6 and 11 hours.

(C) a DN plant.

(D) an SD plant that flowers only when daylight falls below 8 hours.

Passage V

Matter exists in three phases: solid, liquid, and gas. In general, these phases are defined by how far apart the particles in the substance are. Particles are typically closest together in a solid and farthest away from one another in a gas.

Temperature is clearly related to phases. As temperature rises, particles move faster and farther away from one another and matter changes from a solid to a liquid to a gas. The temperature at which matter changes from liquid to gas is called its boiling point.

Pressure also affects phases of matter. A substance that is a gas at a certain temperature and low pressure may become a liquid at the same temperature if pressure is increased.

Figures 1 and 2 summarize the relationship among temperature, pressure, and phase for both bromine and water.

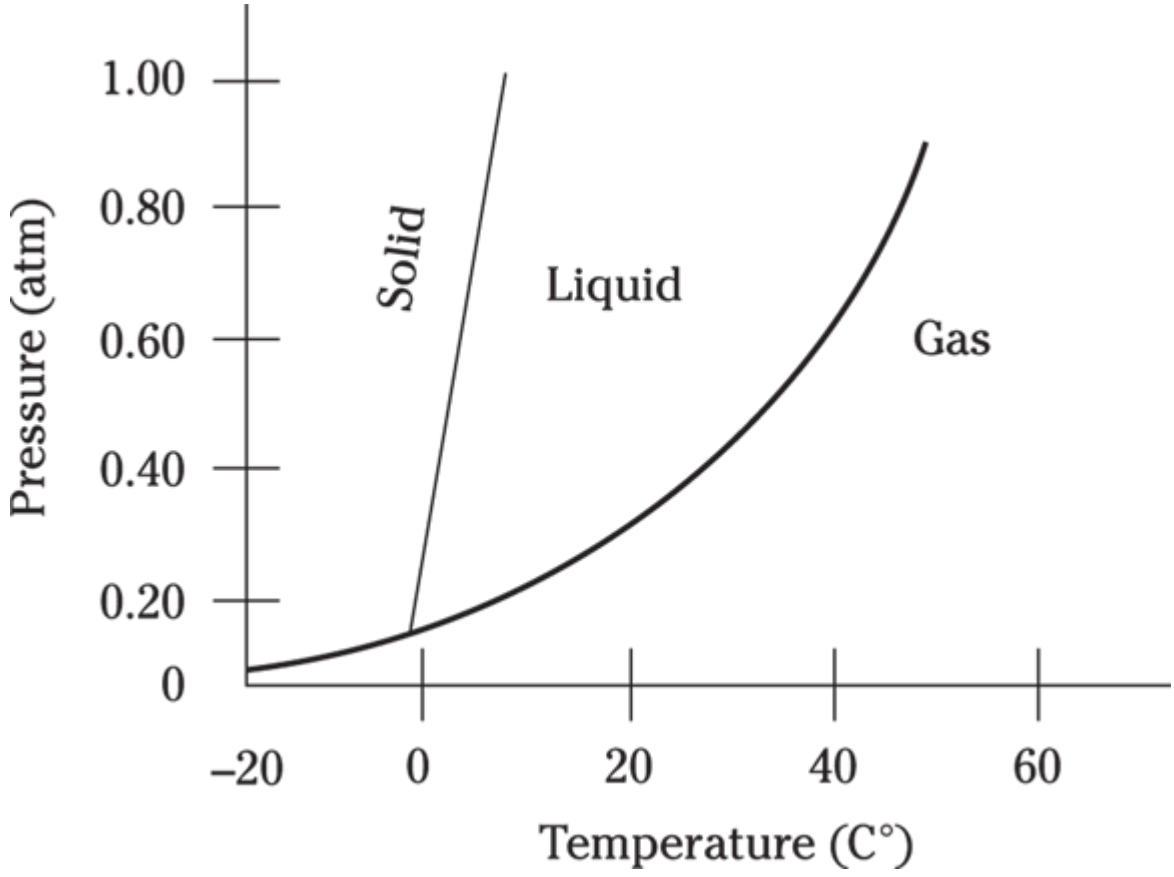


FIGURE 1: Bromine phases.

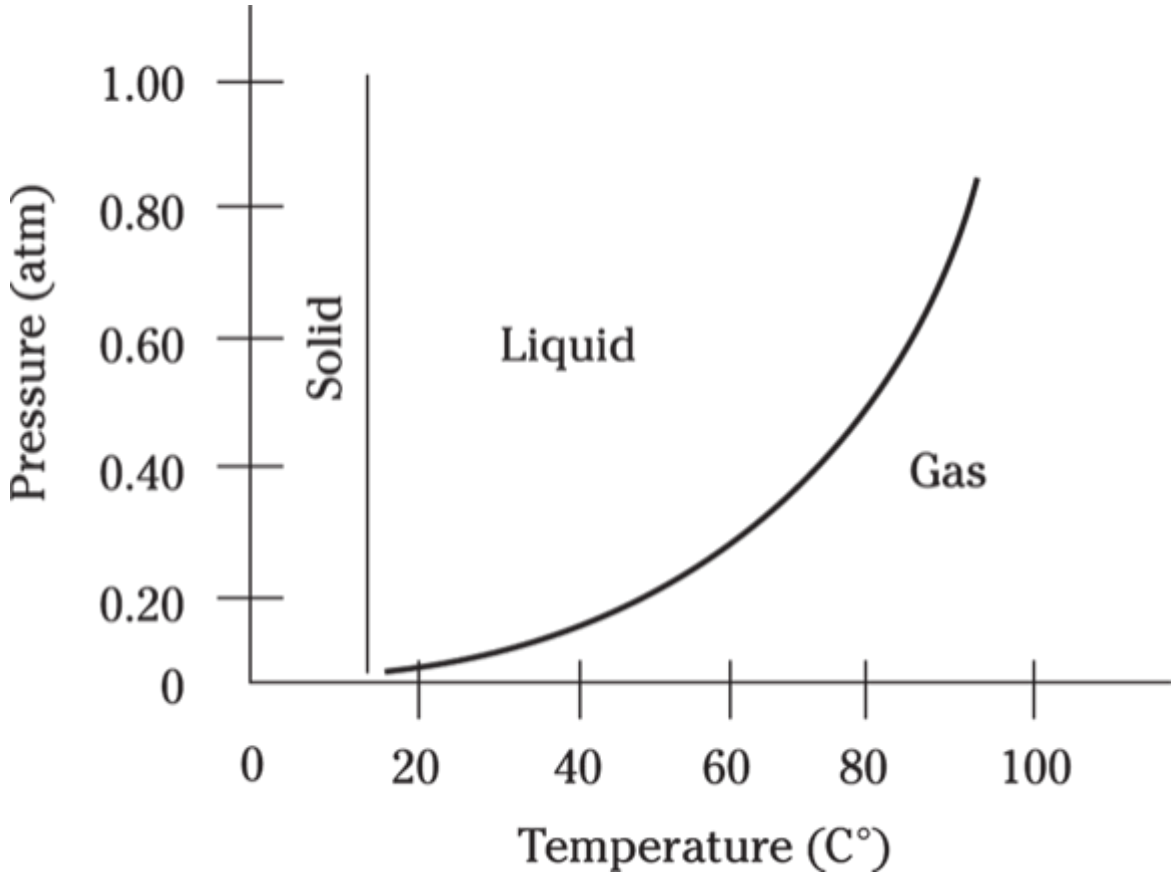


FIGURE 2: Water phases.

28. At $60°C$ and 1.00 atm, water is:

(F) a solid.

(G) a liquid.

(H) a gas.

(J) in the process of changing from a solid to a liquid.

29. Sublimation occurs when a solid changes to a gas without going through a liquid phase. A point at which sublimation can occur is when:

(A) bromine is at $-20°C$ and 0.05 atm.

(B) bromine is at $0°C$ and 0.80 atm.

(C) water is at $0°C$ and 0.80 atm.

(D) water is at $80°C$ and 0.50 atm.

30. At $30°C$, as pressure is decreased from 0.6 atm to 0.3 atm, it is true that:

(F) bromine changes from a gas to a liquid.

(G) bromine changes from a liquid to a gas.

(H) water changes from a solid to a liquid.

(J) water changes from a gas to a liquid.

31. For which of the following are the particles farthest apart?

(A) bromine at $-10°C$ and 1.00 atm.

(B) bromine at $50°C$ and 0.80 atm.

(C) water at $0°C$ and 0.40 atm.

(D) water at $100°C$ and 0.60 atm.

32. At high altitudes, pressure is lower and softening spaghetti in boiling water takes longer than it does at sea level. According to the information in the passage, the most reasonable explanation for this effect is that:

(F) ice crystals form on the spaghetti.

(G) air temperature is lower at high altitudes.

(H) the boiling point is lower at lower pressure and lower temperatures are not as effective at softening spaghetti.

(J) at lower pressure, water boils at a higher temperature and reaching this temperature takes longer.

33. Based on Figures 1 and 2, at all levels of pressure, which of the following is a true statement regarding the relationship between water and bromine?

(A) Water spends more time as a liquid than bromine does.

(B) Bromine spends more time as a liquid than water does.

(C) Water changes from a liquid to a gas at a greater temperature than bromine does.

(D) Bromine changes from a liquid to a gas at a lower temperature than water does.

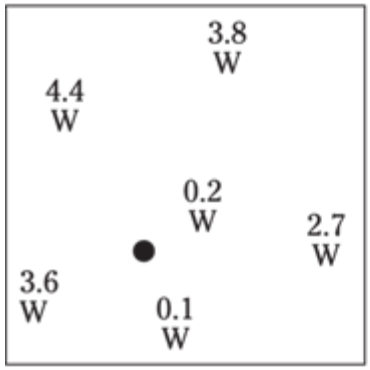
Passage VI

Radon is a gas that is emitted from the earth's crust in small quantities. Radon can readily be detected in wells. An accidental discovery of excessive radon emission in an earthquake-prone area led seismologists to study the association between radon emission and earthquakes. Such an association could prove valuable in perfecting ways to predict earthquakes.

Study 1

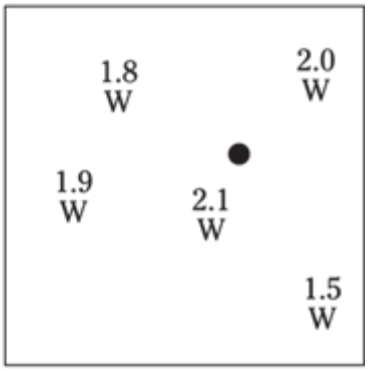
Scientists selected four sites that had experienced recent earthquakes and measured radon emissions in several wells located near the epicenter (the point on the earth's surface above the focus of an earthquake). At each well, the scientists recorded the percentage by which that well's radon emission exceeded the average radon emission found in wells throughout the world. This percentage was called the differential. These measurements are depicted in Figures 1 through 4.

Figure 1



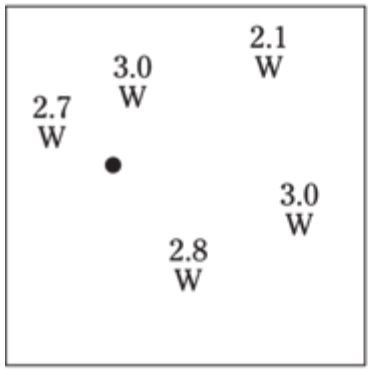
China
Magnitude - 7.9
Average differential - 2.5

Figure 2



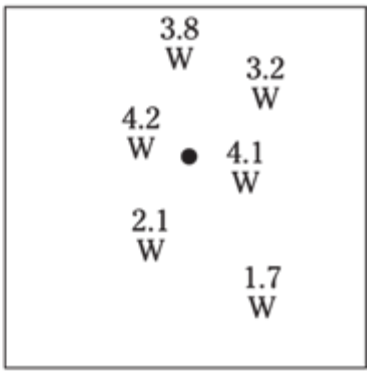
Iran
Magnitude - 6.9
Average differential - 1.9

Figure 3



California, USA
Magnitude - 7.2
Average differential - 2.7

Figure 4



Chile
Magnitude - 7.5
Average differential - 3.2

Legend for all figures

● = Epicenter

Number = Percent that radon emission is greater than normal (differential)

W = Well

Scale: 1 cm = 100 km

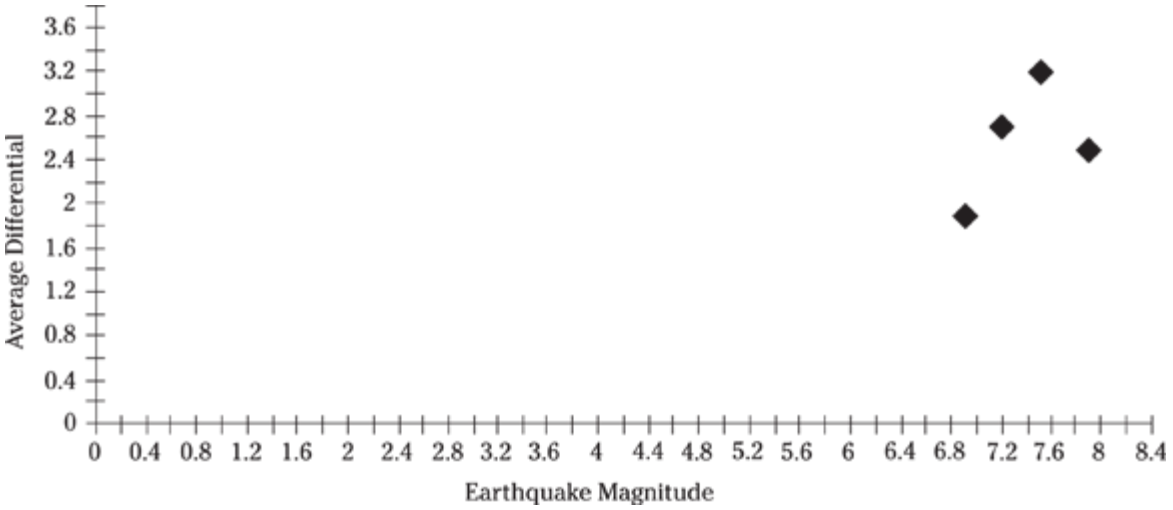


FIGURE 5: Scatter plot of average differential and earthquake magnitude.

Study 2

To study whether the differential varied depending on the magnitude of an earthquake, seismologists made a scatter plot of the average differential against earthquake magnitude for each site. Figure 5 shows this scatter plot.

34. Based on Figures 1, 2, 3, and 4, which of the following expresses the relationship between earthquake magnitude and the average percent that radon emissions are greater than normal?

(F) Across all sites, earthquakes with greater magnitudes produced greater average differentials.

(G) Across all sites, earthquakes with lesser magnitudes produce greater average differentials.

(H) This is no clear relationship between magnitude and average differential.

(J) Sites with greater earthquake magnitudes have more wells.

35. It is reasonable to conclude from Study 1 that:

(A) there is no correlation between earthquakes and increased radon emissions.

(B) some evidence suggests a correlation between earthquakes and increased radon emissions.

(C) radon emissions of wells more than 1,000 km from the epicenter of an earthquake do not increase.

(D) radon emissions at an earthquake's epicenter are more than 5 percent greater than normal levels for the entire earth.

36. Which of the following would strengthen the claim that increased radon emissions are associated with earthquakes?

(F) Scientists measure radon emissions from wells near the epicenter of an earthquake in the Caribbean and record measurements that do not differ significantly from average radon emissions throughout the world.

(G) For each of the locations depicted in the figures for Study 1, scientists study wells that were 500 miles from the epicenters and find that these wells had similar emission differentials to those recorded at wells near the earthquakes' epicenters.

(H) Scientists find a location with a 7.9 magnitude earthquake and an average emission differential of 3.6.

(J) Scientists discover more earthquake activity at the epicenters depicted in the figures for Study 1.

37. Do the findings in Study 1 support the conclusion that radon emissions cause earthquakes?

(A) No, because the results merely suggest that earthquakes and increased radon emissions occur together.

(B) No, because the differentials would have to exceed 4 percent at all well sites to support this conclusion.

(C) Yes, because every well site had higher-than-normal radon emissions.

(D) Yes, because the radon comes from beneath the earth's surface.

38. Which of the following is an important control condition that is lacking in the studies?

(F) The studies fail to measure radon emissions from more than five or six wells from each site.

(G) The studies do not measure radon emissions from sites that experienced earthquakes with magnitudes greater than 8.0.

(H) The studies do not take into consideration radon emissions from sites that have not had an earthquake in more than 400 years.

(J) The studies do not include radon emission measurements from the same sites before the earthquakes occurred.

39. A study that would provide useful information to make a determination of whether radon emissions can be used to predict earthquakes would be one that measures radon emissions:

(A) before an earthquake takes place.

(B) as an earthquake takes place.

(C) around epicenters for earthquakes that have a magnitude weaker than 6.9.

(D) around epicenters for earthquakes that have a magnitude stronger than 7.9.

40. The information in Study 2 provides:

(F) conclusive proof that there is a correlation between earthquake magnitude and the average differential of radon emissions.

(G) strong support for the theory that there is almost no relationship between the occurrence of earthquakes and higher radon emissions.

(H) a visual depiction of the relationship between earthquake magnitude and the percentage that its radon emissions exceed average levels.

(J) a visual record of the negative correlation between earthquake magnitude and average differential.

Writing Test

TIME: 40 minutes

DIRECTIONS: Prepare a response to the prompt below in a logical, clear, and well-organized essay that follows the rules of Standard English. Write your essay on a separate sheet of lined paper.

As an alternative to traditional fundraising, the school board is proposing to fund school activities and athletic equipment by contracting with a large soft drink company to place advertisements on school buses and gymnasium walls. The contract with the soft drink company will generate about $200,000.00 per year for the district, much more than can be raised by traditional fundraising methods like magazine sales. A parents' organization opposes the contract, stating that soft drink advertisements on school buses and inside school buildings send the message that the school endorses student consumption of soft drinks despite research that shows that soft drink consumption may lead to obesity. Given the potential ramifications of allowing the ads, versus prohibiting them, this is an important issue that deserves careful consideration.

Read and carefully consider these perspectives. Each suggests a particular way of thinking about the school board's proposed soft drink advertisements.

Perspective 1: Yes, soft drinks are bad for you, but the same can be said about refined sugar, sweetened juices and potato chips. The point is, people are going to eat what they want to eat, whether an ad on a school bus or an ad on TV is the one telling them to. The school may as well reap the financial benefits.

Perspective 2: The school day offers a clear opportunity to ingrain what is important in the minds of today's youth, and that includes

instilling healthy eating habits. The school building and school buses are not the right places for ads promoting unhealthy, bad-for-you products.

Perspective 3: While it is unfortunate that the contract that will generate $200,000 for the school comes from a soft drink company, the school's need for funding trumps its need to tell students what they can and cannot eat. Until a better alternative comes along, posting the ads is the lesser of two evils.

Essay Task

Write a unified, coherent essay in which you evaluate multiple perspectives as to whether schools should enter into advertising contracts with soft drink companies to raise funds. In your essay, be sure to:

- Clearly state your own perspective on the issue and analyze the relationship between your perspective and at least one other perspective.
- Develop and support your ideas with reasoning and examples.
- Organize your ideas clearly and logically.
- Communicate your ideas effectively in standard written English.

Your perspective may be in full agreement with any of the others, in partial agreement, or wholly different.

Mathematics Test

TIME: 50 minutes for 45 questions
DIRECTIONS: Each question has five answer choices. Choose the best answer for each question and shade the corresponding oval on your answer sheet.

1. If $x = -3$, what is the value of $2x^2 - 5x + 1$?

A. 10
B. 34
C. 28
D. -32

2. What is 40% of 250?

F. 90
G. 100
H. 110
J. 125

3. In the equation $3y - 7 = 14$, what is the value of y?

A. 3
B. 5
C. 7
D. 21

4. A store marks up the wholesale cost of an item by 60%. If the wholesale cost is $25, what is the retail price?

F. $35
G. $37.50
H. $39
J. $40

5. What is the slope of the line passing through points (-2, 5) and (4, 17)?

A. 2
B. 3
C. 4
D. 6

6. If $3x + 2 = 5x - 8$, then $x = ?$

F. -5
G. -3
H. 5
J. 10

7. What is the area of a triangle with base 12 cm and height 8 cm?

A. 20 cm^2
B. 40 cm^2
C. 96 cm^2
D. 48 cm^2

8. Which of the following is equivalent to $3(x - 4) + 2(x + 1)$?

F. $5x - 10$
G. $5x - 14$
H. $5x + 2$
J. $5x - 6$

9. If $f(x) = x^2 - 3x + 2$, what is $f(4)$?

A. 2
B. 6
C. 10
D. 14

10. What is the value of $|7 - 12|$?

F. -5
G. 5
H. 19
J. -19

11. In a class of 40 students, 15 play basketball and 25 play soccer. If 8 students play both sports, how many play neither?

A. 0
B. 6
C. 8
D. 10

12. What is the circumference of a circle with radius 9 inches? (Use $\pi \approx 3.14$)

F. 28.26 inches
G. 254.34 inches
H. 56.52 inches
J. 18 inches

13. If 2/3 of a number is 18, what is the number?

A. 27
B. 12
C. 24
D. 36

14. Which of the following is a factor of $x^2 - 16$?

F. (x - 2)
G. (x + 8)
H. (x - 8)
J. (x + 4)

15. A rectangle has length 15 and width 8. What is its perimeter?

A. 23
B. 30
C. 120
D. 46

16. If y varies directly with x, and y = 12 when x = 4, what is y when x = 7?

F. 21
G. 18
H. 24
J. 28

17. What is the value of $\sqrt{81} - \sqrt{49}$?

A. 4
B. 2
C. $\sqrt{32}$
D. 6

18. In the expression $5x^2 - 3x + 7$, what is the coefficient of x?

F. 5
G. -3
H. 7
J. 2

19. If a car travels 180 miles in 3 hours, what is its average speed in miles per hour?

A. 50 mph
B. 55 mph
C. 60 mph
D. 65 mph

20. What is 3^4?

F. 12
G. 64
H. 81
J. 27

21. If the sum of three consecutive integers is 60, what is the smallest of these integers?

A. 19
B. 20
C. 21
D. 18

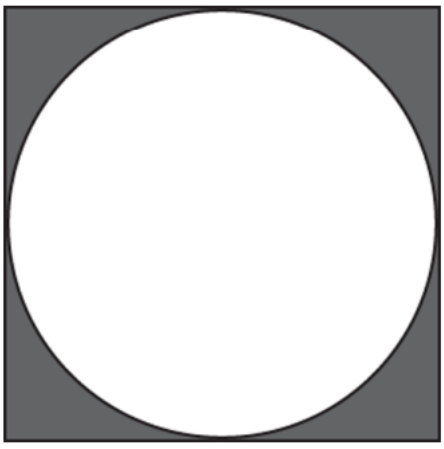
22. What is the distance between points (3, 7) and (3, -2) in the coordinate plane?

F. 9
G. 5
H. 4
J. 0

23. Which of the following is equivalent to $(x + 5)(x - 3)$?

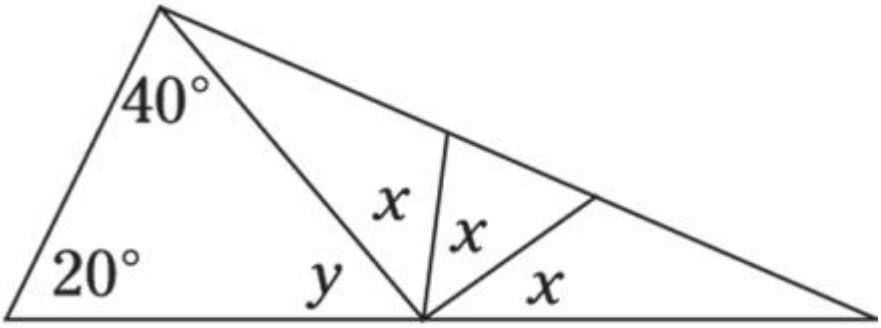
A. $x^2 + 2x - 15$
B. $x^2 - 2x + 15$
C. $x^2 + 8x - 15$
D. $x^2 + 2x - 15$

24. If the shaded area in the following square is $144 - 36\pi$, what is the diagonal of the square?



F. $13\sqrt{2}$
G. $12\sqrt{3}$
H. $12\sqrt{2}$
J. $6\sqrt{2}$

25. What is the measurement in degrees of x?



A. 10
B. 20
C. 30
D. 40

26. If $\log_3(x) = 4$, then x = ?

F. 12
G. 81
H. 64
J. 27

27. What is the median of the following set: 8, 3, 12, 7, 15, 9, 5?

A. 7
B. 8
C. 9
D. 12

28. A box contains 6 red marbles, 4 blue marbles, and 5 green marbles. What is the probability of randomly selecting a blue marble?

F. 4/15
G. 4/11
H. 1/4
J. 4/15

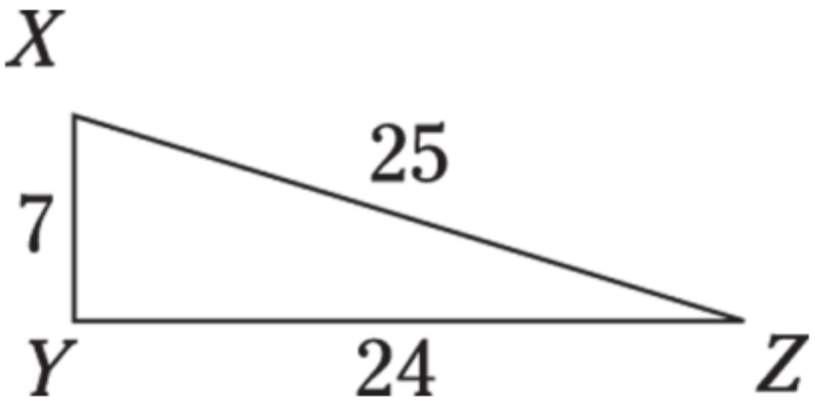
29. If $\sin(\theta) = 0.6$ and θ is an acute angle, what is $\cos(\theta)$?

A. 0.4
B. 0.6
C. 0.8
D. 1.0

30. What is the solution set for the inequality 3x - 7 > 8?

F. x > 5
G. x < 5
H. x > 15
J. x < 1

31. In the following right triangle XYZ, what is the value of tan Z?



A. 7/25
B. 7/24
C. 24/25
D. 25/24

32. If matrix A = [3 2; 1 4] and matrix B = [2 1; 3 2], what is A + B?

F. [5 3; 4 5]
G. [1 1; -2 2]
H. [5 3; 4 6]
J. [6 2; 3 8]

33. What is the 8th term in the sequence 5, 8, 11, 14, ...?

A. 26
B. 29
C. 23
D. 32

34. If a cylinder has a radius of 4 cm and height of 10 cm, what is its volume? (Use $\pi \approx 3.14$)

F. 125.6 cm^3
G. 502.4 cm^3
H. 251.2 cm^3
J. 160 cm^3

35. What is the value of $(2x - 3)^2$ when $x = 5$?

A. 4
B. 7
C. 64
D. 49

36. For which value of x is the expression $(x - 3)/(x^2 - 9)$ undefined?

F. $x = 3$ or $x = -3$
G. $x = 0$
H. $x = 9$
J. $x = -9$

37. If the angles of a triangle are in the ratio 2:3:5, what is the measure of the largest angle?

A. 36°
B. 54°
C. 90°
D. 108°

38. What is the range of the function $f(x) = x^2 + 1$ for all real numbers x?

F. All real numbers
G. $y \geq 0$
H. $y > 0$
J. $y \geq 1$

39. If 5^(2x) = 125, what is the value of x?

A. 3/2
B. 5/2
C. 2
D. 3

40. A cone has a base radius of 6 cm and a height of 8 cm. What is its volume? (Use $\pi \approx 3.14$)

F. 150.72 cm^3
G. 301.44 cm^3
H. 301.44 cm^3
J. 452.16 cm^3

41. Which of the following is equivalent to √(50)?

A. 25√2
B. 5√2
C. 10√5
D. 2√5

42. If the points (2, k), (5, 7), and (8, 13) are collinear, what is the value of k?

F. 0
G. 1
H. 2
J. 3

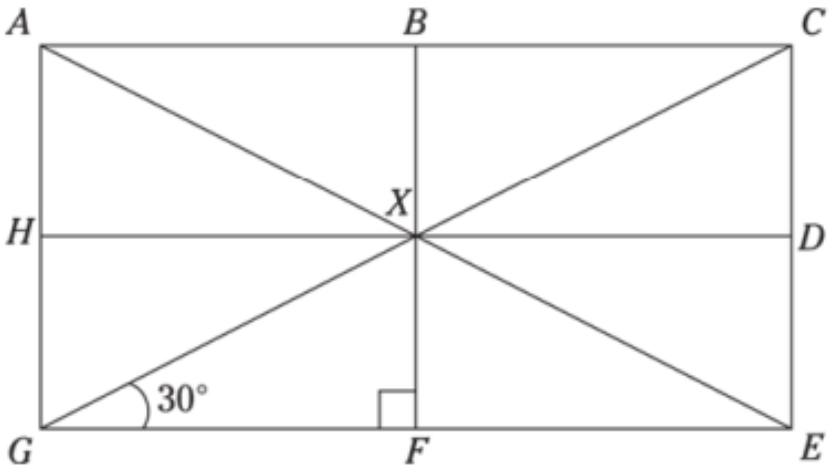
43. What is the sum of the interior angles of a pentagon?

A. 360°
B. 450°
C. 720°
D. 540°

44. If $f(x) = 3x - 2$ and $g(x) = x^2$, what is $f(g(2))$?

F. 10
G. 8
H. 12
J. 14

45. Find the area of rectangle ACEG.



A. 8√2
B. 8√3
C. 16√3
D. 16√2