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Form Codes AEKA, BWKA



The SAT[®]

Question-and-Answer Service January 2014 Administration

INSIDE:

- Test questions and correct answers
- The difficulty level for each question
- Your essay prompt and all other essay prompts administered on your test day
- Instructions for scoring your test
- Suggestions for using this report

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ESSAY

Time — 25 minutes

The essay gives you an opportunity to show how effectively you can develop and express ideas. You should, therefore, take care to develop your point of view, present your ideas logically and clearly, and use language precisely.

Your essay must be written on the lines provided on your answer sheet—you will receive no other paper on which to write. You will have enough space if you write on every line, avoid wide margins, and keep your handwriting to a reasonable size. Remember that people who are not familiar with your handwriting will read what you write. Try to write or print so that what you are writing is legible to those readers.

Important Reminders:

- **A pencil is required for the essay.** An essay written in ink will receive a score of zero.
- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**
- **If your essay does not reflect your original and individual work, your scores for the entire test may be canceled.**
- **An electronic copy of your essay will be made available to each of your designated score recipients: colleges, universities, and scholarship programs.**

You have twenty-five minutes to write an essay on the topic assigned below.

Think carefully about the issue presented in the following excerpt and the assignment below.

Frederick Douglass once said, "If there is no struggle, there is no progress. This struggle may be a moral one, or it may be a physical one, and it may be both moral and physical, but it must be a struggle." He was right. Progress is something that must be fought for; without conflict, progress simply does not occur.

Assignment: Does progress result only from struggle and conflict? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

BEGIN WRITING YOUR ESSAY ON PAGE 2 OF THE ANSWER SHEET.

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.



1

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Think carefully about the issue presented in the following excerpt and the assignment below.

There are two false assumptions about experts. One is that they see more clearly and think more intelligently than ordinary citizens. Sometimes they do, sometimes not. The other false assumption is that these experts have the same interests as ordinary citizens and hold the same values. In fact, the important decisions of society are within the capability of ordinary citizens. Not only can ordinary people make their own decisions without the help of experts, but they ought to.

Adapted from Howard Zinn, *Declarations of Independence*

Assignment: Should people make more decisions on their own and rely less on the advice of experts? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

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You have twenty-five minutes to write an essay on the topic assigned below.

Think carefully about the issue presented in the following excerpt and the assignment below.

For many people, the traditional path to success involves graduating from high school and college before working their way up in a particular profession. However, many of society's most successful individuals taught themselves the skills they needed to start their own businesses, invent new technologies, or create works of art. For these individuals, the nontraditional path turned out to be the path to success.

Assignment: Are people who do not follow society's traditional paths to advancement more likely to be successful than those who do? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

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You have twenty-five minutes to write an essay on the topic assigned below.

Think carefully about the issue presented in the following excerpt and the assignment below.

Some see printed books as dusty remnants from the preelectronic age. They point out that electronic books, or e-books, cost less to produce than printed books and that producing them has a much smaller impact on natural resources such as trees. Yet why should printed books be considered obsolete or outdated just because there is something cheaper and more modern? With books, as with many other things, just because a new version has its merits doesn't mean that the older version should be eliminated.

Assignment: Should we hold on to the old when innovations are available, or should we simply move forward? Plan and write an essay in which you develop your point of view on this issue. Support your position with reasoning and examples taken from your reading, studies, experience, or observations.

BEGIN WRITING YOUR ESSAY ON PAGE 2 OF THE ANSWER SHEET.

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SECTION 2

Time — 25 minutes

24 Questions

Turn to Section 2 (page 4) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful
- (B) end . . divisive
- (C) overcome . . unattractive
- (D) extend . . satisfactory
- (E) resolve . . acceptable

(A) (B) (C) (D) (E)

1. Jim was so opposed to any type of change that he ----- even the most beneficial -----.
(A) blamed . . customs
(B) presented . . inventions
(C) welcomed . . reforms
(D) anticipated . . results
(E) resisted . . improvements
2. Eager to enlist as a soldier during the American Revolution, Deborah Sampson Gannett successfully ----- the military's gender boundary by donning men's clothing and ----- a male identity.
(A) delineated . . flaunting
(B) circumvented . . assuming
(C) reinstated . . mimicking
(D) denounced . . inventing
(E) skirted . . disguising
3. For a cycling tourist, ----- is paramount: situations inevitably arise that require a cyclist to be alert and keen witted.
(A) deference (B) perseverance
(C) munificence (D) alacrity
(E) vigilance
4. The problem of soil degradation is -----: few, if any, agriculturally important regions are unaffected by it.
(A) recent (B) modest (C) subtle
(D) global (E) finished
5. Lauren was often labeled easygoing because she tended to appear mild and ----- rather than tense and -----.
(A) sullen . . serious
(B) relaxed . . excitable
(C) joyful . . intelligent
(D) slow . . patient
(E) likable . . humorous
6. The poet's publisher cautioned her against overusing ----- language, but the poet preferred the lively, informal dialect of her hometown.
(A) vernacular (B) superannuated
(C) bombastic (D) austere
(E) erudite
7. Essayist Michel de Montaigne cultivated a contemplative prose style that seemed to meander with his thoughts, thereby making his essays ----- and filled with -----.
(A) digressive . . tangents
(B) cursory . . ephemera
(C) convoluted . . jargon
(D) frenetic . . platitudes
(E) aimless . . polemics
8. The book was aptly described as ----- because it was instrumental in advancing knowledge about its subject.
(A) seminal (B) recondite (C) beguiling
(D) incendiary (E) inchoate



Each passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in each passage and in any introductory material that may be provided.

Questions 9-10 are based on the following passage.

Line I accompanied Thiam for the ritualistic morning
greetings. It took a long time to complete the full circle.
As we moved in our orbit, I noticed others circulating
5 in theirs. The entire village was in motion, and from all
directions one could hear "How did you sleep?" followed
by inquiries about each family member's sleep. As we
walked the village, it became clear that in the tradition of
its inhabitants, and even in their imagination, the concept
of divided, differentiated, segmented space does not exist.
10 There are no fences, hedges, nets, ditches, or demarcation
lines anywhere. The space is single, communal, open; it
puts up no limits, offers no resistance.

9. The primary purpose of the passage is to

- (A) recall a favorite pastime
- (B) illuminate a cultural concept
- (C) justify an unpopular conclusion
- (D) describe a dying tradition
- (E) recommend a course of action

10. In the passage, the author is represented as being

- (A) a passionate reformer
- (B) a local leader
- (C) an inexperienced employee
- (D) an exacting critic
- (E) an interested outsider

Questions 11-12 are based on the following passage.

Line Astrophysics is different from most other branches of
the physical sciences because it isn't experimental.
Generally, when other physical scientists want to test an
idea, they go into the lab and construct an experiment that
5 allows them to manipulate reality. Their subsequent
observations help to confirm or disprove a hypothesis.
"But our lab is the universe," says astrophysicist Marcella
Carollo, "which we can't force to do anything. All we can
do is make observations, and what we observe is very far
10 away and hard to interpret. But we can still make
assumptions that fit the conditions we observe. Based on
those assumptions, we then make a prediction."

11. The passage is primarily concerned with

- (A) pointing out an important distinction
- (B) advocating an experimental procedure
- (C) corroborating a controversial hypothesis
- (D) putting to rest a common apprehension
- (E) reporting on a significant discovery

12. The passage implies which of the following about
astrophysicists and other physical scientists?

- (A) Both astrophysicists and other physical scientists depend on their ability to alter the physical world in controlled environments.
- (B) Both astrophysicists and other physical scientists are hampered by the inability to collect verifiable data to validate their theories.
- (C) Astrophysicists find it difficult to evaluate data because they are frequently in competition for resources with other physical scientists.
- (D) The hypotheses put forward by astrophysicists are not as readily substantiated as are those of other physical scientists.
- (E) The methods employed by astrophysicists are more scientifically valid than are the approaches used by other physical scientists.



Questions 13-24 are based on the following passage.

The following passage is adapted from a novella set in the New England village of North Dormer. It was first published in 1917.

The young man had passed through the Hatchard gate, and Charity had the street to herself. North Dormer is at all times an empty place, and at three o'clock on a June afternoon its few able-bodied men are off in the fields or woods, and the women indoors, engaged in languid household drudgery.

The girl walked along, looking about her with the heightened attention produced by the presence of a stranger in a familiar place. What, she wondered, did North Dormer look like to people from other parts of the world? She herself had lived there since the age of five, and had long supposed it to be a place of some importance. But about a year before, Mr. Miles, the new Episcopal clergyman at Hepburn, who drove over every other Sunday to hold a service in the North Dormer church, had proposed, in a fit of missionary zeal, to take the young people down to Nettleton to hear an illustrated lecture on the Holy Land; and the dozen girls and boys who represented the future of North Dormer had been piled into a farm-wagon, driven over the hills to Hepburn, put into a way-train and carried to Nettleton. In the course of that incredible day Charity Royall had, for the first and only time, experienced railway-travel, looked into shops with plate-glass fronts, tasted cocoanut pie, sat in a theatre, and listened to a gentleman saying unintelligible things before pictures that she would have enjoyed looking at if his explanations had not prevented her from understanding them. This initiation had shown her that North Dormer was a small place, and developed in her a thirst for information that her position as custodian* of the village library had previously failed to excite. For a month or two she dipped feverishly and disconnectedly into the dusty volumes of the Hatchard Memorial Library; then the impression of Nettleton began to fade, and she found it easier to take North Dormer as the norm of the universe than to go on reading.

The sight of the stranger once more revived memories of Nettleton, and North Dormer shrank to its real size. As she looked up and down it, from lawyer Royall's faded red house at one end to the white church at the other, she pitilessly took its measure. There it lay, a weather-beaten sunburnt village of the hills, abandoned of men, left apart by railway, trolley, telegraph, and all the forces that link life to life in modern communities. It had no shops, no theatres, no lectures, no "business block"; only a church that was opened every other Sunday if the state of the roads permitted, and a library for which no new books had been bought for twenty years, and where the old ones mouldered undisturbed on the damp shelves. Yet Charity Royall had always been told that she ought to consider it a privilege that her lot had been cast in North Dormer. She knew that, compared to the place she had come from, North Dormer

represented all the blessings of the most refined civilization. Everyone in the village had told her so ever since she had been brought there as a child. Even old Miss Hatchard had said to her, on a terrible occasion in her life: "My child, you must never cease to remember that it was Mr. Royall who brought you down from the Mountain."

She had been "brought down from the Mountain"; from the scarred cliff that lifted its sullen wall above the lesser slopes of Eagle Range, making a perpetual background of gloom to the lonely valley. The Mountain was a good fifteen miles away, but it rose so abruptly from the lower hills that it seemed almost to cast its shadow over North Dormer. And it was like a great magnet drawing the clouds and scattering them in storm across the valley. If ever, in the purest summer sky, there trailed a thread of vapour over North Dormer, it drifted to the Mountain as a ship drifts to a whirlpool; and was caught among the rocks, torn up and multiplied, to sweep back over the village in rain and darkness.

Charity was not very clear about the Mountain; but she knew it was a bad place, and a shame to have come from, and that, whatever befell her in North Dormer, she ought, as Miss Hatchard had once reminded her, to remember that she had been brought down from there, and hold her tongue and be thankful. She looked up at the Mountain, thinking of these things, and tried as usual to be thankful. But the sight of the young man turning in at Miss Hatchard's gate had brought back the vision of the glittering streets of Nettleton, and she felt ashamed of her old sun-hat, and sick of North Dormer.

* one charged with maintaining records or property

13. The passage serves primarily to represent a young woman's

- (A) curiosity about a particular stranger
- (B) resentment toward another villager
- (C) feelings about her life
- (D) regrets about her choices
- (E) plans for her future life

14. Lines 2-6 ("North . . . drudgery") serve primarily to

- (A) analyze a character
- (B) criticize a view
- (C) convey an aspiration
- (D) describe a setting
- (E) present a problem



15. The tone of the question in lines 9-10 ("What . . . world?") is best described as

(A) defensive
(B) ironic
(C) worried
(D) dubious
(E) speculative

16. The author indicates that, for Charity, the activities experienced in lines 23-25 ("railway-travel . . . pictures") were

(A) novel
(B) comical
(C) meaningless
(D) embarrassing
(E) intimidating

17. Lines 27-33 ("This initiation . . . Library") suggest that Charity's immediate response following the trip to Nettleton was to

(A) attempt to learn more about the larger world
(B) resort to books as a desperate substitute for reality
(C) attempt to improve the quality of the library's holdings
(D) try to improve her status as a library employee
(E) imitate the behavior of Nettleton residents

18. The statement "she pitilessly took its measure" (lines 39-40) means that Charity

(A) estimated the distance from one end of the street to the other
(B) brooded over the condition of the library
(C) felt abandoned and suddenly alone in the world
(D) took a dispassionate look at her surroundings
(E) felt sorry for the narrow-minded villager

19. The description of the "village" in lines 40-48 ("There it . . . shelves") primarily serves to emphasize its

(A) quaintness and simplicity
(B) wealth and influence
(C) cohesiveness and cooperation
(D) isolation and stagnation
(E) wariness and apathy

20. The tone of the statement in lines 56-58 ("My child . . . Mountain") is best described as

(A) defensive
(B) sarcastic
(C) sorrowful
(D) bitter
(E) reproving

21. The "Mountain" (line 58) represents which of the following to the people of North Dormer?

(A) A means to self-improvement
(B) A place of disappointment
(C) A source of disgrace
(D) An escape from responsibility
(E) An unattainable goal

22. The description of the Mountain in lines 59-71 serves primarily to

(A) emphasize its dangerous terrain
(B) allude to its ancient beginnings
(C) differentiate it from nearby mountains
(D) characterize it as an illusory object
(E) portray it as an ominous presence



23. The simile in lines 68-69 ("it drifted . . . whirlpool") serves to evoke a sense of

- (A) immediacy
- (B) obscurity
- (C) inconstancy
- (D) inevitability
- (E) finality

24. Charity's impressions of life on the Mountain have been formed by

- (A) her research in the library
- (B) her recollections of her very early years
- (C) her mental image of an ideal place to live
- (D) the opinions of other North Dormer residents
- (E) information supplied by visitors to North Dormer

STOP

If you finish before time is called, you may check your work on this section only.
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SECTION 3

Time — 25 minutes

20 Questions

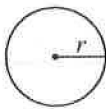
Turn to Section 3 (page 4) of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratch work.

Notes

1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information

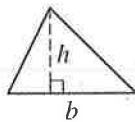


$$A = \pi r^2$$

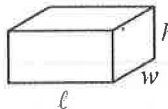
$$C = 2\pi r$$



$$A = \ell w$$



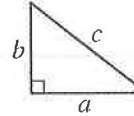
$$A = \frac{1}{2}bh$$



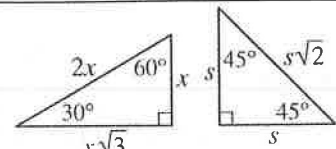
$$V = \ell wh$$



$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

$$(x + y)^2 < 10$$

1. Which of the following ordered pairs (x, y) does NOT satisfy the inequality above?

- (A) $(-5, 1)$
- (B) $(-3, 2)$
- (C) $(0, 2)$
- (D) $(1, 1)$
- (E) $(3, 0)$

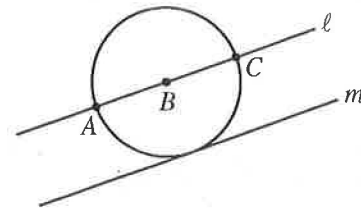
2. A shop that is open from 10:00 in the morning to 3:00 in the afternoon sells hats and dresses. The shop offers a 15 percent discount on all dresses sold before 12:00 noon. The shop offers a 10 percent discount on all hats sold after 12:00 noon. Which of the following must be true?

- (A) If it is not 12:00 noon, then the shop is not offering any discounts.
- (B) If it is 12:00 noon, then the shop is offering a 25 percent discount on all hats and dresses.
- (C) If it is 1:00 in the afternoon, then the shop is offering a 15 percent discount on all dresses.
- (D) If it is 5:00 in the afternoon, then the shop is offering a 15 percent discount on all hats.
- (E) If it is 11:30 in the morning, then the shop is offering a 15 percent discount on all dresses.

GO ON TO THE NEXT PAGE

3. If $2x + 2y = 36$ and $x = 8$, how much greater is y than x ?

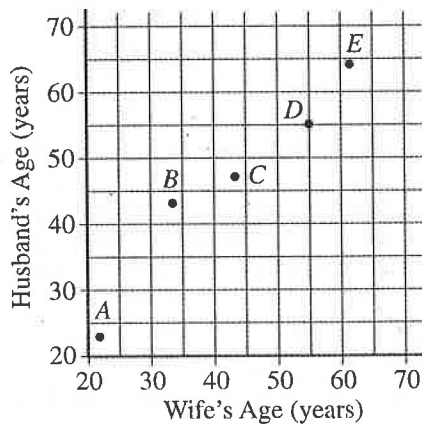
(A) 1
(B) 2
(C) 8
(D) 10
(E) 16



5. In the figure above, lines ℓ and m are parallel, B is the center of the circle, and line m is tangent to the circle. If $AC = 30$, what is the distance between lines ℓ and m ?

(A) 10
(B) 12
(C) 15
(D) 18
(E) 20

AGES OF FIVE MARRIED COUPLES



4. Each of the five points in the scatterplot above shows the age of the husband and the age of the wife for a married couple. Which point in the scatterplot represents the married couple with the largest difference in age?

(A) A
(B) B
(C) C
(D) D
(E) E

$$w(t) = 200t + 1,000$$

$$r(t) = 150t + 2,500$$

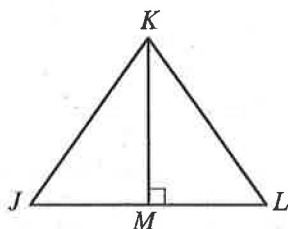
6. The functions w and r above model the total savings, in dollars, by Winnie and Rudy, respectively, t months after they begin saving. If they begin saving at the same time, how many months after they begin saving will Winnie's savings and Rudy's savings be the same amount?

(A) 10
(B) 15
(C) 30
(D) 60
(E) 70

GO ON TO THE NEXT PAGE

7. If a number rounded to the nearest hundredth is 9.99, which of the following could be the number?

(A) 9.845
(B) 9.932
(C) 9.983
(D) 9.992
(E) 9.998



Note: Figure not drawn to scale.

8. In the figure above, $\overline{KM} \perp \overline{JL}$ and $ML > JM$. Of the following lengths, which is greatest?
- (A) JK
(B) JM
(C) KL
(D) KM
(E) ML

7 8 8.5 9 9 10 12 14 14 15 16 16

9. Sonia and 11 of her classmates worked on a class fundraiser. The list above shows the number of hours each of these 12 students worked. Exactly half of these students worked fewer hours than Sonia. How many hours did Sonia work?

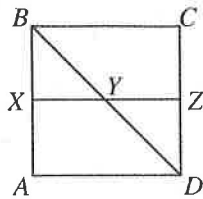
(A) 6
(B) 8
(C) 10
(D) 11
(E) 12

Half of the sum of n and the cube of n is 5 less than twice n .

10. Which of the following is equivalent to the statement above?

(A) $\frac{n + n^3}{2} = 2n - 5$
(B) $\frac{n + n^3}{2} = 5 - 2n$
(C) $\frac{n + 3n}{2} = 2n - 5$
(D) $\frac{n + 3n}{2} = 2n + 5$
(E) $\frac{n}{2} + n^3 = 2n - 5$

GO ON TO THE NEXT PAGE



11. In the figure above, $ABCD$ is a square with sides of length 6. If X is the midpoint of side \overline{AB} , and if Z is the midpoint of side \overline{CD} , what is the area of $AXYD$?

(A) 13
(B) 13.5
(C) 14
(D) 14.5
(E) 15

12. If there are exactly 6 possible arrangements of n different letters in a row from left to right, what is the value of n ?

(A) 12
(B) 6
(C) 4
(D) 3
(E) 2

13. The surface area of a sphere is 144π square inches.

What is the volume of the sphere, in cubic inches?

(The volume of a sphere with radius r is $\frac{4}{3}\pi r^3$.)

The surface area of a sphere with radius r is $4\pi r^2$.)

(A) 108π
(B) 176π
(C) 216π
(D) 288π
(E) 324π

14. In a sequence, each term after the first is 7 more than the previous term. If the 15th term of the sequence is 108, what is the 85th term of the sequence?

(A) 588
(B) 591
(C) 595
(D) 598
(E) 605

15. For all nonzero numbers x and y , let the operation \blacktriangle be defined by $x \blacktriangle y = \frac{2x}{y}$. Which of the following is NOT equal to an integer?

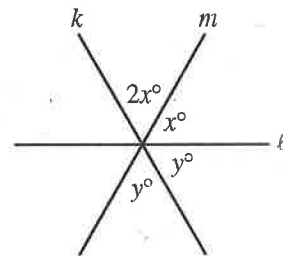
(A) $-2 \blacktriangle 4$
 (B) $-2 \blacktriangle 2$
 (C) $-2 \blacktriangle 1$
 (D) $3 \blacktriangle 6$
 (E) $5 \blacktriangle 3$

16. A circle and a triangle are to be drawn in the same plane. What is the maximum possible number of points in which they can intersect?

(A) 2
 (B) 3
 (C) 4
 (D) 5
 (E) 6

17. Sarah and Kurt sold rolls of wrapping paper to raise money for a school trip. The number of rolls that Kurt sold was 20 less than 3 times the number of rolls that Sarah sold. Which of the following could be the total number of rolls that Sarah and Kurt sold?

(A) 164
 (B) 165
 (C) 167
 (D) 170
 (E) 175

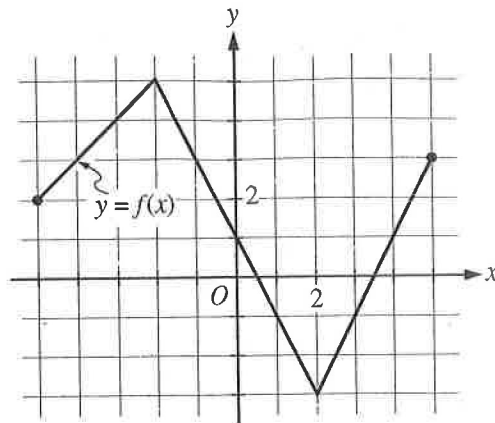


Note: Figure not drawn to scale.

18. In the figure above, lines k , l , and m intersect at a point. What is the value of x ?
- (A) 72
 (B) 60
 (C) 45
 (D) 36
 (E) 30

19. Each of the integers a and b has a remainder of 2 when it is divided by 12. What is the remainder when the sum $a + 2b$ is divided by 6?

(A) 0
 (B) 2
 (C) 3
 (D) 4
 (E) 5



20. The complete graph of the function f , shown above, will be reflected across the y -axis. The new graph and the original graph will have how many points in common?

(A) None
 (B) One
 (C) Two
 (D) Three
 (E) Four

STOP

If you finish before time is called, you may check your work on this section only.
 Do not turn to any other section in the test.



SECTION 5

Time — 25 minutes

35 Questions

Turn to Section 5 (page 5) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A) ● (C) (D) (E)

1. While playing in the park one morning, a loud argument was gotten into by several of the children over the use of the swings.
 - (A) a loud argument was gotten into by several of the children
 - (B) a loud argument between several of the children was gotten into
 - (C) and a loud argument gotten into by several of the children
 - (D) several of the children getting into a loud argument
 - (E) several of the children got into a loud argument
2. Vitamin D, which the body needs in order to absorb calcium, is produced when skin is exposed to ultraviolet rays.
 - (A) calcium, is produced
 - (B) calcium, and is produced
 - (C) calcium, producing it
 - (D) calcium and produces
 - (E) calcium and produces it
3. Designing a computer monitor requires not only an understanding of electromagnetism, chemistry, and the psychology of human vision.
 - (A) not only an understanding of
 - (B) both an understanding of
 - (C) an understanding of not only
 - (D) an understanding of both
 - (E) an understanding of
4. Edgar Allan Poe's poem "The Raven," partly inspired by a talking raven in the novel *Barnaby Rudge* by Charles Dickens.
 - (A) Edgar Allan Poe's poem "The Raven,"
 - (B) Edgar Allan Poe, whose poem "The Raven" was
 - (C) A poem by Edgar Allan Poe, "The Raven," which was
 - (D) "The Raven" by Edgar Allan Poe, being a poem
 - (E) "The Raven," a poem by Edgar Allan Poe, was



5. Unlike coniferous trees, whose leaves are usually needlelike, the leaves of deciduous trees are typically broad and flat.
- (A) the leaves of deciduous trees are typically broad and flat
(B) it is typical for the leaves of deciduous trees to be broad and flat
(C) broad and flat leaves are typical of deciduous trees
(D) deciduous trees have leaves that are typically broad and flat
(E) on deciduous trees, the leaves are typically broad and flat
6. Even choosing the least expensive rate, the package was so heavy that it cost José nearly a hundred dollars to mail it to his cousin in Madrid.
- (A) Even choosing
(B) Even though choosing
(C) Even though he chose
(D) Although he had chose
(E) Although choosing
7. An early American film star, Pearl White starred in several serials whose episodes had suspenseful endings that enticed audiences to return for the next installment.
- (A) serials whose episodes had suspenseful endings
(B) serials, their episodes had suspenseful endings
(C) serials, which had episodes ending suspenseful
(D) serials of whose episodes the suspenseful endings
(E) serials, each of these episodes had a suspenseful ending
8. Although we typically associate deserts with hot, dry weather, deserts can also be cold, most of Antarctica is a desert despite the continent's frigid temperatures.
- (A) cold, most of Antarctica is
(B) cold; most of Antarctica is
(C) cold, in fact, most of Antarctica is
(D) cold; whereas most of Antarctica is
(E) cold, such as most of Antarctica being
9. One reason fish spoils faster than meat is due to the fact that the muscle fibers of fish are specialized to function best in cold environments.
- (A) meat is due to the fact that
(B) meat is because of the fact that
(C) meat, which is because
(D) meat is that
(E) meat, since
10. The Canada lynx has oversized, webbed paws that act as snowshoes, allowing them to hunt rabbits even when the snow is deep.
- (A) allowing them to hunt rabbits even
(B) allowing it to hunt rabbits even
(C) even allowing them to hunt rabbits
(D) which allow them to hunt rabbits even
(E) this allows it to hunt rabbits even
11. The article praised Isak Dinesen not so much for her genius as a storyteller but because she was remarkably defiant of society's expectations of women during the early twentieth century.
- (A) but because she was remarkably defiant
(B) but because of her remarkable defiance
(C) but for being remarkably defiant
(D) as for her remarkable defiance
(E) as it did her remarkable defiance



The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

EXAMPLE:

The other delegates and him immediately
 A B C
 accepted the resolution drafted by the
 D
 neutral states. No error
 E

(A) (B) (C) (D) (E)

12. While candidates for political office think carefully
 A

about the way they dress for public appearances,

but they generally do not want to appear to care
 B C
too much about clothes. No error
 D E

13. The professor urged her students to follow their
 A B
 own career interests, to serve their communities, and
 believing in the power of their own ideas. No error
 C D E

14. Karting, or the racing of miniature automobiles called
 A

karts, originate in the United States in the 1950s
 B

after a famous race-car builder developed a kart
 C

powered by a lawn-mower engine. No error
 D E

15. Living in the rain forests of northeastern Madagascar,
 A

lemurs called silky sifakas are local known as "ghosts
 B

of the forest" because of their fast movements and
 C D

bone-white fur. No error
 E

16. For thousands of years the inhabitants of Australia
 A

have been digging underground water reservoirs
 B

in order for surviving on one of the world's driest
 C D

continents. No error
 E

17. When the finalists in the essay contest receive their
 A B

scholarships at the awards ceremony, the first-place
 C

winner was also given a computer. No error
 D E



18. Both Serena, who has just been elected president
A

of the union, and Martin, its treasurer, attends the
B C

weekly meetings of the labor council. No error
D E

19. Although artificially intelligent machines can now
A B

beat humans at chess, they cannot outperform humans
C

at practical tasks such as folding laundry, cooking, and
D

caring for pets. No error
E

20. When one thinks about opening a new business,
A

you must consider factors such as start-up costs,
B C D

local competition, and customer demand. No error
E

21. Automatic photo booths that were invented after the
A

discovery of an automated photographic process that

eliminated the need not only for negatives
B C

but also for camera operators. No error
D E

22. Faced with the ever-challenging task of balancing
A B

school and work, Jillian opted to forego taking a
C

second part-time job and focusing on her studies
D

instead. No error
E

23. During her lifetime, M. S. Subbulakshmi was
A

considered one of India's greatest singers, and the
B

recordings she made has secured her reputation for
C D

future generations. No error
E

24. If the proposals approved by the city council at its
A B

most recent meeting come to fruition, several derelict
C

buildings will see new life after years of neglect.
D

No error
E

25. In 1999 researchers proposed the theory that
A

octopuses engage in play, the deliberate, repeated,
B

seeming useless activity through which intelligent
C D

animals explore their world and refine their skills.

No error
E



26. Consisting of sixty-nine photographs she took

A

of herself posing in settings resembling those of

B

C

old movies, the *Untitled Film Stills* series repelled

D

Cindy Sherman to artistic fame. No error

E

27. You might think that because they are beautiful,

A

peacocks would make a pleasant pet, but in fact their

B

loud, unearthly shrieks are very disturbing. No error

C

D

E

28. For my roommate and I to reduce the amount of

A

B

trash we threw out each week, we had to resolve

to stop making so many unnecessary purchases in the

C

D

first place. No error

E

29. That the director won an Academy Award for his

A

most recent movie surprised those of us who felt

B

that the film was far inferior to those made by several

C

of his competitors for the coveted prize. No error

D

E

Directions: The following passage is an early draft of an essay. Some parts of the passage need to be rewritten.

Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

Questions 30-35 refer to the following passage.

(1) When Pluto was first detected in 1930, it was welcomed as a newly discovered planet. (2) Their reaction was understandable. (3) Pluto was initially thought to be about the size of Earth and therefore of proper planetary dimensions. (4) But by the late 1970s, closer observation had established that Pluto was in fact less than half the size of Mercury. (5) Dismayed, some astronomers now began to question whether so small an object deserved to be ranked among the planets.

(6) Pluto differs from the other planets also in that it is composed largely of ice—more like a comet than a typical planet. (7) In the 1990s it was discovered that Pluto was just the largest of hundreds of comet-like bodies occupying a region known as the Kuiper Belt. (8) Pluto, the doubters argued, should therefore be classed with these icy objects rather than with the planets.

(9) Rushing to Pluto's defense, many astronomers rejected these arguments, pointing out that the established planets differ among themselves in both composition and size. (10) Mars, for instance, is composed of metal and rock, while Neptune is mostly gas. (11) Why, then, could a planet not just as well be composed of ice? (12) And as for size difference, Jupiter is 1300 times larger than Earth, but no one would suggest that the two bodies therefore cannot both be planets.

(13) Clearly they need to resolve the issue of Pluto's classification. (14) In 2006 the International Astronomical Union defined a planet as a body that directly orbits the Sun, is large enough to be rounded by its own gravity, and has cleared its neighboring region of other orbiting bodies. (15) Pluto was judged to satisfy the first two criteria but not the third, because of all the Kuiper Belt objects populating its neighborhood.



30. In context, which of the following is the best version of the underlined portion of sentence 1 (reproduced below) ?

When Pluto was first detected in 1930, it was welcomed as a newly discovered planet.

- (A) (as it is now)
- (B) it was a newly discovered planet and welcomed as such
- (C) being a newly discovered planet, it was welcomed
- (D) the newly discovered planet was also welcomed by astronomers
- (E) astronomers welcomed it as a newly discovered planet

31. In context, which of the following revisions of the underlined portion of sentence 4 (reproduced below) would add the most relevant information?

But by the late 1970s, closer observation had established that Pluto was in fact less than half the size of Mercury.

- (A) Mercury, the planet closest to the Sun
- (B) Mercury, the smallest of the traditional planets
- (C) Mercury, which was named for a Roman messenger god
- (D) Mercury, which was discovered in ancient times
- (E) Mercury, whose atmosphere is too thin to support human life

32. Which of the following sentences, if inserted immediately before sentence 6, would provide the most effective transition between the first and second paragraphs?

- (A) Pluto's anomalous size was not the only source of doubt.
- (B) This was not the first time that a planet's status had been called into question.
- (C) Such scientific disputes can become surprisingly heated.
- (D) The question of who deserves credit for a scientific discovery is sometimes difficult to settle.
- (E) Many were shocked at the suggestion that Pluto was not really a planet.

33. In context, which of the following is the best revision of the underlined portion of sentence 7 (reproduced below) ?

In the 1990s it was discovered that Pluto was just the largest of hundreds of comet-like bodies occupying a region known as the Kuiper Belt.

- (A) In the 1990s, however,
- (B) In the 1990s, by comparison,
- (C) In fact, in the 1990s
- (D) Similarly, in the 1990s
- (E) Consequently, in the 1990s

34. In context, which of the following is the best version of the underlined portion of sentence 13 (reproduced below) ?

Clearly they need to resolve the issue of Pluto's classification.

- (A) (as it is now)
- (B) the public needs
- (C) something was needed
- (D) further observations were needed
- (E) a precise definition of planethood was needed

35. Which of the following sentences, if placed immediately after sentence 15, would best conclude the passage?

- (A) Pluto's discoverer, Clyde Tombaugh, had died in 1997 and so did not live to see his beloved planet demoted.
- (B) Ceres and Pallas had undergone a similar demotion in the nineteenth century when they were reclassified as asteroids rather than planets.
- (C) Ultimately, then, Pluto was demoted from planetary status not because of its small size but because of the close company it keeps.
- (D) This was perhaps the most momentous decision that the International Astronomical Union had made in its 87-year history.
- (E) Nonetheless, supporters of Pluto point out that it has more moons than Mars, Earth, Venus, or Mercury.

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.



SECTION 6

Time — 25 minutes

24 Questions

Turn to Section 6 (page 6) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful
(B) end . . divisive
(C) overcome . . unattractive
(D) extend . . satisfactory
(E) resolve . . acceptable

(A) (B) (C) (D) ☒

1. It was ----- of the hikers to head out on their journey into the wilderness without enough supplies or practical survival experience.

(A) dishonest (B) reckless (C) petty
(D) cunning (E) thrifty

2. Although daydreaming is generally seen as counterproductive, it can be surprisingly -----, even helping us make progress toward long-term goals.

(A) distracting (B) infrequent (C) difficult
(D) useful (E) simple

3. Some health professionals believe that ----- can be ----- by limiting caloric intake: put simply, if you eat moderately, you may live longer.

(A) stamina . . impaired
(B) endurance . . alleviated
(C) immortality . . averted
(D) longevity . . promoted
(E) maturity . . established

4. Stinkbugs, as their name suggests, are capable of secreting a ----- chemical to ward off predators.

(A) malignant (B) debilitating (C) malodorous
(D) fragmentary (E) phosphorescent

5. Mae West's bold disregard for popular conventions and norms during her film career earned her a reputation for -----.

(A) tenaciousness (B) audacity
(C) voraciousness (D) amiability
(E) complacency



The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

Questions 6-9 are based on the following passages.

Passage 1

The green consumer market is exciting, innovative, and filled with products consumers can feel good about purchasing. When paired with other eco-friendly behaviors such as curbing consumption, reusing products, and recycling everything possible, green consumerism—the purchasing of products with the least harmful impact upon the environment—has the potential to change what and how companies manufacture. Ultimately, demand for green products will drive down prices, lead to further innovations, and educate consumers on how their behavior impacts the Earth.

Passage 2

For all its well-meaning appearance, green consumerism is still consumerism. Green marketing tactics often do no more than fool us into thinking that we are doing something environmentally beneficial when actually we are merely responding to the latest gimmick to increase sales. Certainly, some new products are marginally better than previous ones, but few take the necessary creative leaps that encourage manufacturing that truly is in harmony with the ways of the Earth. In many respects green consumerism marks a turning point, for it is bringing Earth consciousness into the limelight. But it is important to understand the difference between what is merely green hype and the true attempts at establishing a healthy and ecological marketplace.

6. The primary purpose of both passages is to

- (A) raise a question
- (B) evaluate a trend
- (C) advance a theory
- (D) condemn a practice
- (E) make a recommendation

7. Both authors would agree that green consumerism

- (A) is likely to benefit the environment in substantial ways
- (B) is a proven solution to addressing an ongoing problem
- (C) has caused people to be smarter and more selective shoppers
- (D) can raise people's awareness of the ecological effects of their behavior
- (E) will become more popular as more companies make better products at a cheaper cost

8. In lines 17-18 ("Certainly . . . ones"), the author of Passage 2 primarily

- (A) makes a concession
- (B) issues a challenge
- (C) offers an appeal
- (D) downplays a concern
- (E) criticizes a phenomenon

9. In line 21, "marks" most nearly means

- (A) signals
- (B) records
- (C) traces
- (D) blemishes
- (E) observes



Questions 10-16 are based on the following passage.

The author is an Italian American journalist who first visited Rome in 1947 and was based in Italy in the 1970s.

Line From the moment I walked into the Grappolo d'Oro,
sometime during the summer of 1968, it became one of my
favorite hangouts. It was then a very typical, very modest
Roman trattoria,¹ with paper tablecloths and bare walls, but
5 the atmosphere was friendly and the food simple but superb.

My earliest memories of Rome, in fact, are inextricably
enmeshed with recollections of wonderful meals. The
women in my family were all fine cooks, and I grew up,
10 even in New York, eating daily the sort of food only the
finest Italian restaurants in the United States can
occasionally approximate. When I went back to Rome after
several years away, it seemed perfectly natural to me to be
eating inexpensively in establishments like the Grappolo
15 d'Oro where every dish was prepared to provide not merely
nourishment, but pleasure. The term "fast food" had not
even been coined, and the Italians I knew considered
American cooking to be an atrocity. A meal in Rome, even
in the middle of a working day, was an experience to be
20 savored and lingered over and never took less than two or
three hours, after which one went home for a snooze behind
closed shutters before going back to work. At night, long
after the tourists had departed for their hotels, the Grappolo
would remain busy, sometimes until nearly midnight, with
25 tables of diners reluctant to abandon the source of such
contentment and still nibbling on cheeses, fruit, and sweets.
And after, the talk would be about food—discussions
about the quality of the fish or the freshness of the
mozzarella (I have a friend who won't eat a mozzarella
30 more than six hours old), the success or failure of a
particular recipe, all carried out with the intensity of a
political debate. Good cooking in a Roman trattoria is not
merely a necessity, but a philosophical imperative.

Nevertheless, it is unusual to hear anyone in Rome
35 speak well of a particular restaurant. Even the regulars at a
favorite haunt will seldom praise it. A couple of years ago,
after an absence of several months, I was discussing the
Grappolo with a Roman crony of mine. We had just
finished eating there with a party of friends and I had
40 expressed satisfaction that standards had not been lowered
while I was away. My friend disagreed. "It is not the
same," he said, and proceeded to complain that a pasta
serving he had recently ordered had not been cooked
correctly and that twice in the past two weeks his favorite
45 dish, *penne all'arrabiata*, had not been spicy enough. He
also commented that he had been finding less variety in the
offerings on the appetizer table. I observed that he must
have been eating there regularly, as often as two or three

times a week. He shrugged. "What do you expect? It's not
50 what it was, but it's not bad," he said. I stopped worrying.
"Not bad" is a term of encomium² in Rome.

¹ An informal type of restaurant common in Italy

² Enthusiastic praise

10. As presented in the passage, the Grappolo d'Oro is best characterized as

- (A) an illustration of inexplicable success
- (B) an exemplar of its kind
- (C) a project gone awry
- (D) a relic of antiquity
- (E) a member of a rare species

11. In lines 1-6, the Grappolo d'Oro is characterized as

- (A) dreary
- (B) extravagant
- (C) welcoming
- (D) frantic
- (E) sophisticated

12. In line 3, "modest" most nearly means

- (A) bashful
- (B) proper
- (C) reasonable
- (D) unpretentious
- (E) reserved

13. The comment in lines 8-12 ("The women . . . approximate") serves to

- (A) stress the author's ignorance about methods of preparing Italian food
- (B) account for why the author frequents certain kinds of restaurants in Rome
- (C) highlight the difference between eating with family and eating in a small restaurant
- (D) illustrate the author's surprise upon encountering authentic Italian food in Rome
- (E) indicate how the author's taste in food evolved over time



14. Lines 18-22 ("A meal . . . work") indicate that the people the author knew in Rome
- (A) ate protracted meals only on special occasions
 - (B) were constantly seeking out new dining experiences
 - (C) placed a very high priority on the enjoyment of food
 - (D) distrusted restaurants that did not serve Italian food
 - (E) thought a great deal about how their food would affect their health
15. In line 32, the author uses a comparison to a "political debate" to suggest
- (A) seriousness and passion
 - (B) raucousness and animosity
 - (C) maneuvering and compromise
 - (D) cynicism and pandering
 - (E) preparation and strategy

16. The author's "friend" (line 41) is most similar to a person who
- (A) has become so upset with an airline's service that she only uses that airline in an emergency and when no alternative airline is available
 - (B) praises a film to encourage others to see it even though he chooses not to see it again
 - (C) boasts to teammates about the benefits a new exercise routine has brought her
 - (D) watches a long-running television show devotedly because many episodes are entertainingly bad
 - (E) finds fault with a favorite novelist's recent books but continues to read them and looks forward to new ones



Questions 17-24 are based on the following passages.

These two passages discuss water fluoridation, the practice of adding controlled amounts of fluoride to public water supplies for the purpose of reducing the incidence of tooth decay in children. Passage 1 is from a 2004 book; Passage 2 is from a 2010 book.

Passage 1

Line Fluoridation has been a contentious issue for many years
because of concerns about the effects of the fluoride on
public health. Opposition has come from many sources,
5 sometimes distinguished researchers and policy makers,
as well as an array of fringe organizations and vocal
individuals. The Internet has dozens of Web sites with
headings such as "Act Now to Ban Fluoride in Drinking
Water" and "You're Putting What in Our Drinking Water?"
10 Over the years the proponents have demonstrated to
the satisfaction of professional dental and medical
organizations worldwide that fluoridation is effective in
reducing caries* and is safe. The opposition has claimed
that it does not work and that it causes almost every
15 affliction known to humans. Science must always be
challenged because that is the way that progress is made,
but the challenge must use scientifically sound experiments
and robust analysis. In some cases scientific studies
have been badly designed, but the antifuoridation lobby
weakens its own credibility by making claims that are
20 often completely spurious and by resorting to falsehoods,
conspiracy theories, and scare tactics.

Concerns about the safety of fluoridation have been
made and investigated many times over the last 40 years.
One of the most recent summary statements on the safety
25 was by the U.S. National Institute of Dental and
Craniofacial Research:

As with other nutrients, fluoride is safe and
effective when used and consumed properly.
After more than 50 years of research and
30 practical experience—as well as data evaluation
by the U.S. government, committees of experts,
and national and international health
organizations—the verdict remains the same:
fluoridating community water supplies, at
35 optimal levels, is an effective and safe method
for preventing tooth decay.

Passage 2

At a public meeting held on October 17, 2009, in
Yellow Springs, Ohio, a community that was considering
halting its fluoridation program, Paul Connett gave
40 a twenty-minute presentation on the scientific arguments
against the practice. After a county health commissioner
and local dentist responded, a woman in the audience said,

"Whether this practice is safe or not, or beneficial or not,
I want freedom of choice. It is *my* right to choose what
45 substances I put into my body, not *some governmental*
agency's."

This woman echoed what many opponents of
fluoridation have believed and articulated for over 60 years:
government has no right to force anyone to take
50 a medicine. Thus, while in the effort to end this practice
worldwide it is helpful to provide scientific evidence that
the program is neither effective nor safe, this commonsense
position remains at the crux of the argument against
fluoridation.

55 Proponents respond to this ethical argument by turning
it upside down. They argue that it is unethical to deprive
children of a benefit that might reduce pain and help them
lead healthier lives, especially children from low-income
families. However, by not putting fluoride in the water,
60 you are not depriving anyone of access to fluoride: it is
available in tablet form and in fluoridated toothpaste. From
an economic perspective, avoiding fluoride is an expensive
business, whether it involves purchasing bottled water for
cooking and drinking or the use of distillation equipment
65 or reverse osmosis systems. Thus, low-income families are
disproportionately burdened by fluoridation since by and
large they cannot afford avoidance measures.

* tooth decay

17. Which statement best describes the relationship
between the two passages?

- (A) Passage 2 explores an ethical implication of
a practice discussed in Passage 1.
- (B) Passage 2 elaborates on an argument referred to
in Passage 1.
- (C) Passage 2 affirms the philosophical position stated
in Passage 1.
- (D) Passage 2 discredits the validity of the evidence
offered in Passage 1.
- (E) Passage 2 agrees with a solution proposed in
Passage 1.



18. Which statement summarizes an important difference between the two passages?

- (A) Passage 1 discusses government policy, whereas Passage 2 criticizes public sentiment.
- (B) Passage 1 describes the pros and cons of a practice, whereas Passage 2 focuses exclusively on its benefits.
- (C) Passage 1 is made up of a series of generalizations, whereas Passage 2 supports each claim with expert testimony.
- (D) Passage 1 offers a historical overview, whereas Passage 2 bases its argument on a recent study.
- (E) Passage 1 relies primarily on scientific evidence, whereas Passage 2 considers such evidence a secondary concern.

19. In line 16, "sound" most nearly means

- (A) severe
- (B) wise
- (C) firm
- (D) healthy
- (E) valid

20. The author of Passage 1 considers the actions of the "lobby" (line 18) to be

- (A) deplorable
- (B) unconventional
- (C) tentative
- (D) unavoidable
- (E) auspicious

21. The statement in lines 27-36 is best described as

- (A) a legal position
- (B) an unprecedented recommendation
- (C) an unequivocal endorsement
- (D) a candid admission
- (E) an informal announcement

22. The "commonsense position" (lines 52-53) is best described as one that values

- (A) scientific authority
- (B) societal stability
- (C) public health
- (D) individual agency
- (E) government intervention

23. The statement in lines 59-61 ("However . . . toothpaste") primarily serves to

- (A) note an exception
- (B) refute a claim
- (C) acknowledge a drawback
- (D) level a criticism
- (E) define a term

24. The author of Passage 1 would likely characterize the "avoidance measures" (line 67, Passage 2) as

- (A) prudent
- (B) expedient
- (C) onerous
- (D) inadvisable
- (E) inadequate

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 7

Time — 25 minutes

18 Questions

Turn to Section 7 (page 6) of your answer sheet to answer the questions in this section.

Directions: This section contains two types of questions. You have 25 minutes to complete both types. For questions 1-8, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratch work.

Notes

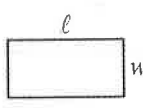
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information

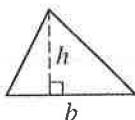


$$A = \pi r^2$$

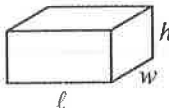
$$C = 2\pi r$$



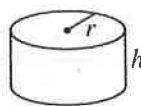
$$A = \ell w$$



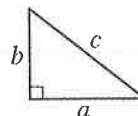
$$A = \frac{1}{2}bh$$



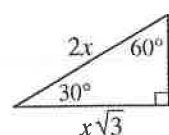
$$V = \ell wh$$



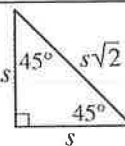
$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



Special Right Triangles

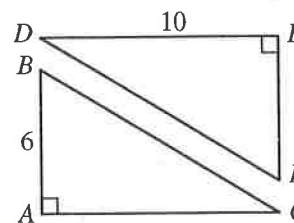


The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

1. What is the value of $\frac{2x+4}{y}$ if $x = 18$ and $y = 4$?

- (A) 9
(B) 10
(C) 11
(D) 11.5
(E) 12.5



2. Triangles ABC and DEF above are right triangles, and they will form a rectangle when \overline{BC} and \overline{DF} coincide. What is the area of the rectangle?

- (A) 30
(B) 48
(C) 60
(D) 96
(E) 120

GO ON TO THE NEXT PAGE

1, 1, 4, 10, 28, ...

3. The first term of the sequence above is 1, and the 2nd term is also 1. Each term after the second is twice the sum of the two preceding terms. What is the 7th term of the sequence?

(A) 76
(B) 104
(C) 120
(D) 152
(E) 208

4. For which of the following values of r and h does a right circular cylinder with radius r and height h have a volume of 18π ?

(A) $r = 2$, $h = 3$
(B) $r = 2$, $h = 9$
(C) $r = 3$, $h = 2$
(D) $r = 3$, $h = 3$
(E) $r = 6$, $h = 3$

5. Company C's retirement policy states that an employee is first eligible to retire when the sum of the employee's age and the number of years the employee has worked for Company C is 70, provided that the employee has worked at the company at least 15 years. If Denise is 45 and has worked at Company C for 9 years, how many more years must she continue to work for the company before she is first eligible to retire?

(A) 6
(B) 8
(C) $12\frac{1}{2}$
(D) 16
(E) 21

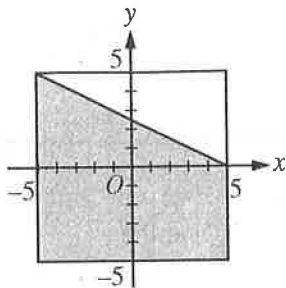
6. The average (arithmetic mean) of t , r , and m is 8; and the average of t , r , m , and k is 11. What is the value of k ?

(A) 3
(B) 9
(C) 12
(D) 20
(E) It cannot be determined from the information given.

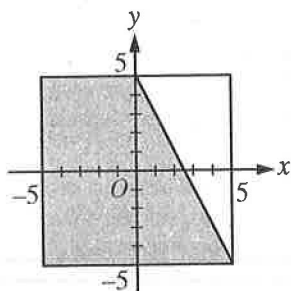
GO ON TO THE NEXT PAGE 

7. Which of the following shaded regions shows all points (x, y) in the xy -plane that are solutions to $x + 2y \leq 5$, where $-5 \leq x \leq 5$ and $-5 \leq y \leq 5$?

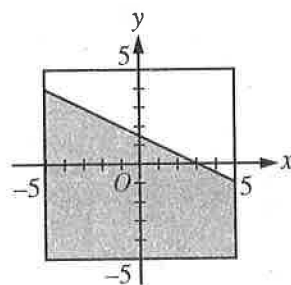
(A)



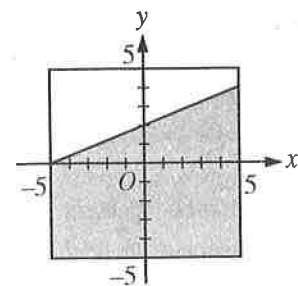
(B)



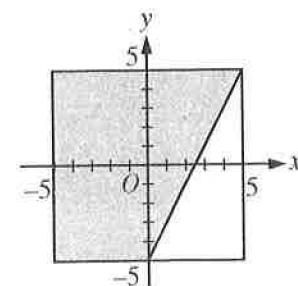
(C)



(D)



(E)



$$2kx = y$$

8. If x is not equal to y in the equation above, which of the following CANNOT be the value of the constant k ?

(A) $-\frac{1}{2}$

(B) 0

(C) $\frac{1}{2}$

(D) 1

(E) 2

GO ON TO THE NEXT PAGE

Directions: For Student-Produced Response questions 9-18, use the grids at the bottom of the answer sheet page on which you have answered questions 1-8.

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the circles in the special grid, as shown in the examples below. You may use any available space for scratch work.

Answer: $\frac{7}{12}$

Write answer in boxes. →

7	/	1	2
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

← Fraction line

Grid in result. →

Answer: 2.5

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

← Decimal point

Answer: 201

Either position is correct.

2	0	1
•	•	•
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

2	0	1
•	•	•
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

Note: You may start your answers in any column, space permitting. Columns not needed should be left blank.

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, **you will receive credit only if the circles are filled in correctly.**
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2. (If $\frac{31}{2}$ is gridded, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)

- **Decimal Answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid. For example, if you obtain an answer such as 0.6666..., you should record your result as .666 or .667. **A less accurate value such as .66 or .67 will be scored as incorrect.**

Acceptable ways to grid $\frac{2}{3}$ are:

2	/	3
•	•	•
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

.	6	6	6
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

.	6	6	7
•	•	•	•
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

9. What is one positive integer less than 60 that is a factor of 60 but is not a factor of 48 ?

10. Point A is the midpoint of segment \overline{JK} , and point B is the midpoint of segment \overline{JA} . If the length of segment \overline{JB} is 4, what is the length of segment \overline{AK} ?

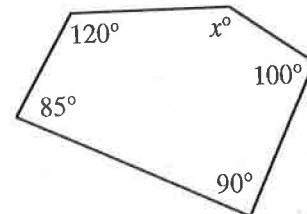
GO ON TO THE NEXT PAGE

x	1	2	3	4	5	6
$f(x)$	22	24	26	28	30	32
$g(x)$	60	70	80	90	100	120

11. The table above gives some values for the functions f and g . What is the product of $f(2)$ and $g(3)$?

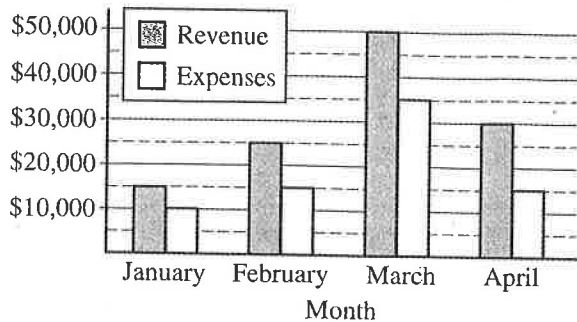
12. If x and y are integers such that $x + y = 9$ and $xy = 20$, what is the largest possible value of $3x - 2y$?

13. Gary owns one more CD than Eric, and Roger owns one more CD than Gary. If the combined number of CDs that the three of them own is greater than 78 and less than 84, how many CDs does Eric own?

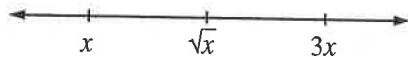


14. In the pentagon above, what is the value of x ?

MONTHLY REVENUE AND EXPENSES

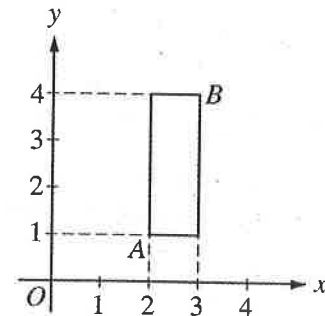


15. The bar graph above shows the monthly revenue and expenses for a business over a four-month period. Based on the graph, the business's profit in February and March combined was what fraction of its total profit over the four-month period shown? (Profit = revenue - expenses.)



16. On the number line above, the tick marks are equally spaced. What is the value of x ?

17. Mr. Wu is at a furniture store with 13 chairs he has just bought. He needs to take them to his home, which is 7 miles away. Mr. Wu plans to take the chairs in his car, but he can take no more than 3 chairs at a time. What is the fewest number of miles Mr. Wu must drive so that all of the chairs will be at his home?



18. In the figure above, the point $(w, 3)$ lies on the diagonal (not shown) that connects points A and B of the rectangle. What is the value of w ?

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.



SECTION 8

Time — 20 minutes

19 Questions

Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful
- (B) end . . divisive
- (C) overcome . . unattractive
- (D) extend . . satisfactory
- (E) resolve . . acceptable

(A) (B) (C) (D) ☒

1. As a child, anthropologist Mireya Mayor was expected to practice piano regularly, a most ----- task for someone who preferred to play outdoors.
 - (A) galvanizing (B) grueling (C) embarrassing
 - (D) diverting (E) ingratiating
2. The immersion of young people of the Hmong American communities into mainstream society and politics has caused a ----- of leadership roles, with the traditional preeminence of the elders increasingly ----- by new ideas.
 - (A) disappearance . . buoyed
 - (B) shifting . . challenged
 - (C) vanishing . . manifested
 - (D) transformation . . detailed
 - (E) stagnation . . curtailed
3. Seymour worked with -----, almost crushing, thoroughness: every step of the complex project was carried out with unremitting -----.
 - (A) exhaustive . . exactitude
 - (B) impromptu . . documentation
 - (C) astounding . . simulation
 - (D) profound . . evasion
 - (E) informal . . perfectionism
4. In 1972 a leading American university offered two courses in Black studies; in 1985 it offered 21 such courses, a change exemplifying the ----- of minority studies since the 1970s.
 - (A) rarity (B) convergence (C) incredulity
 - (D) prognostication (E) proliferation
5. Some feminist theorists believe that patriarchy is ----- reality rather than a permanent state.
 - (A) a transitory (B) a perpetual
 - (C) an immutable (D) an idealistic
 - (E) an intemperate
6. Although a few biologists have ----- some minor flaws in this method of classifying specimens, it is nevertheless an ----- procedure to follow.
 - (A) spurned . . untenable
 - (B) expunged . . infallible
 - (C) lamented . . efficacious
 - (D) rectified . . indubitable
 - (E) accentuated . . erroneous

GO ON TO THE NEXT PAGE



The passage below is followed by questions based on its content. Answer the questions on the basis of what is stated or implied in the passage and in any introductory material that may be provided.

Questions 7-19 are based on the following passage.

This passage is from a 2008 translation of a book by a Japanese novelist and long-distance runner.

Most people only see the surface reality of writing and think of writers as involved in quiet, intellectual work done in their study. If you have the strength to lift a coffee cup, they figure, you can write a novel. But once you try your
Line 5 hand at it, you soon find that it isn't as peaceful a job as it seems. The whole process—sitting at your desk, focusing your mind like a laser beam, imagining something out of a blank horizon, creating a story, selecting the right words, one by one, keeping the whole flow of the story on track—
10 requires far more energy, over a long period, than most people ever imagine. You might not move your body around, but there's grueling, dynamic labor going on inside you. Everybody uses their mind when they think. But a writer puts on an outfit called narrative and thinks
15 with his entire being; and for the novelist that process requires putting into play all physical reserves, often to the point of overexertion.

Writers blessed with talent to spare go through this process unconsciously, in some cases oblivious to it. Especially when they're young, as long as they have a certain level of talent it's not so difficult for them to write a novel. They easily clear all kinds of hurdles. Being young means your whole body is filled with a natural vitality. Focus and endurance appear as needed, and you
20 never need to seek them on your own. If you're young and talented, it's like you have wings.

In most cases, though, as youth fades, that sort of free-form vigor loses its natural vitality and brilliance. After you pass a certain age, things you were able to do easily aren't
30 so easy anymore—just as a fastball pitcher's speed starts to slip away with time. Of course, it's possible for people as they mature to make up for a decline in natural talent. Like when a fastball pitcher transforms himself into a cleverer pitcher who relies on changeups.* But there is a limit. And there definitely is a sense of loss.
35

On the other hand, writers who aren't blessed with much talent—those who barely make the grade—need to build up their strength at their own expense. They have to train themselves to improve their focus, to increase their
40 endurance. To a certain extent they're forced to make these qualities stand in for talent. And while they're getting by on these, they may actually discover real, hidden talent within them. They're sweating, digging out a hole at their feet with a shovel, when they run across a deep, secret water vein. It's a lucky thing, but what made this good fortune
45 possible was all the training they did that gave them the strength to keep on digging. I imagine that late-blooming writers have all gone through a similar process.

Naturally there are people in the world (only a handful, for sure) blessed with enormous talent that, from beginning to end, doesn't fade, and whose works are always of the highest quality. These fortunate few have a water vein that never dries up, no matter how much they tap into it. For literature, this is something to be thankful for. It's hard
50 to imagine the history of literature without such figures as Shakespeare, Balzac, and Dickens. But the giants are, in the end, giants—exceptional, legendary figures. The remaining majority of writers who can't reach such heights (including me, of course) have to supplement what's missing from their store of talent through whatever means they can. Otherwise it's impossible for them to keep on writing novels of any value. The methods and directions a writer takes in order to supplement himself become part of that writer's individuality, what makes him special.
55
60 Most of what I know about writing I've learned through running every day. These are practical, physical lessons. How much can I push myself? How much rest is appropriate—and how much is too much? How far can I take something and still keep it decent and consistent? When does it become narrow-minded and inflexible? How much should I be aware of the world outside, and how much should I focus on my inner world? To what extent should I be confident in my abilities, and when should I start doubting myself? I know that if I hadn't
65 become a long-distance runner when I became a novelist, my work would have been vastly different. How different? Hard to say. But something would have definitely been different.

* pitches that trick batters by being deceptively slow

7. The author is primarily concerned with

- (A) analyzing a widespread assumption
- (B) offering a set of recommendations
- (C) defining a personal characteristic
- (D) reflecting on an activity
- (E) explaining a preference

8. The author suggests that the "surface reality" mentioned in line 1 is

- (A) soothing
- (B) fulfilling
- (C) deceptive
- (D) tedious
- (E) distressing



9. The list of activities in lines 6-9 ("sitting . . . on track") primarily serves to
- (A) emphasize the effort involved in writing
 - (B) expand on a conventional view of writing
 - (C) advocate the best method for writing a story
 - (D) reevaluate the steps involved in writing a story
 - (E) imply that writing is a straightforward task
10. In line 21, "level" most nearly means
- (A) rank
 - (B) equality
 - (C) intensity
 - (D) height
 - (E) degree
11. Lines 18-26 primarily serve to
- (A) express a regret
 - (B) present an exception
 - (C) shift the topic
 - (D) question an established position
 - (E) support a previous claim
12. The author most likely uses the phrase "it's like you have wings" (line 26) to
- (A) point out a similarity between writing and long-distance running
 - (B) indicate the ease with which a certain group writes
 - (C) suggest that certain writers have unique skills
 - (D) characterize the experience of beginning a new work
 - (E) argue that writing is not as difficult as it may appear
13. Which of the following describes a situation most similar to that experienced by the fastball pitcher referred to in line 30?
- (A) A pianist who has not played recently finds that performing in public is more difficult than he anticipated.
 - (B) A teacher returning to the classroom finds that she has forgotten some strategies for teaching basic skills.
 - (C) A dancer late in his career finds that he can no longer perform certain movements as easily as he once did.
 - (D) An actor finds it harder than usual to learn the lines for a part she is not interested in playing.
 - (E) A painter finds that his work becomes more popular as he matures as an artist.
14. The author most likely uses the phrase "only a handful, for sure" (lines 49-50) to
- (A) add a qualification
 - (B) initiate a debate
 - (C) correct a misconception
 - (D) introduce a hypothesis
 - (E) validate a supposition
15. Which of the following best describes the function of the sentence in lines 52-53 ("These fortunate . . . into it")?
- (A) It helps to clarify an unresolved issue.
 - (B) It provides historical information to support a claim.
 - (C) It contradicts a point about talent made earlier in the passage.
 - (D) It continues a metaphor introduced earlier in the passage.
 - (E) It elaborates on the definition of terms used earlier in the passage.
16. In lines 58-59, the author uses the phrase in parentheses to
- (A) justify the choices he has made in his work
 - (B) imply that his work has been found valuable
 - (C) evaluate the work of other writers
 - (D) explain how he supplements his writing
 - (E) display a certain modesty about his work
17. In line 60, "store" most nearly means
- (A) supply
 - (B) value
 - (C) abundance
 - (D) business
 - (E) source



18. What does the author suggest about the questions in lines 67-74 ?

- (A) They help him assess his physical energy.
- (B) They are used to enhance his creativity.
- (C) They are of concern to most writers.
- (D) They apply to both his running and his writing.
- (E) They are important to writers with minimal talent.

19. In lines 74-78 ("I know . . . different"), the author describes the effect of running on his writing as

- (A) invigorating
- (B) motivating
- (C) tiring but calming
- (D) unusual but useful
- (E) significant but elusive

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

SECTION 9

Time — 20 minutes

16 Questions

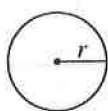
Turn to Section 9 (page 7) of your answer sheet to answer the questions in this section.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratch work.

Notes

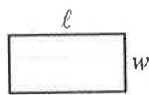
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information

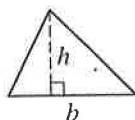


$$A = \pi r^2$$

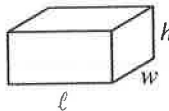
$$C = 2\pi r$$



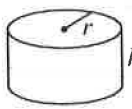
$$A = \ell w$$



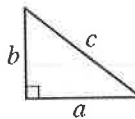
$$A = \frac{1}{2}bh$$



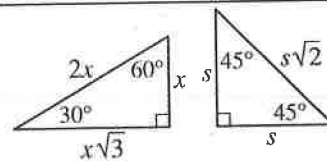
$$V = \ell wh$$



$$V = \pi r^2 h$$



$$c^2 = a^2 + b^2$$



Special Right Triangles

The number of degrees of arc in a circle is 360.

The sum of the measures in degrees of the angles of a triangle is 180.

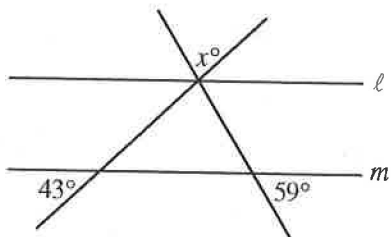
1. Let M be the set of all multiples of 3, and let F be the set of all factors of 24. Which of the following sets is a subset of both M and F ?

- (A) $\{3, 9\}$
 (B) $\{4, 16\}$
 (C) $\{3, 6, 12\}$
 (D) $\{3, 8, 9\}$
 (E) $\{4, 12, 24\}$

2. The product of 10 and what number is equal to $\frac{1}{2}$?

- (A) $\frac{1}{20}$
 (B) $\frac{1}{5}$
 (C) $\frac{1}{4}$
 (D) 5
 (E) 20

GO ON TO THE NEXT PAGE



3. In the figure above, line ℓ is parallel to line m . What is the value of x ?

(A) 58
(B) 68
(C) 72
(D) 78
(E) 82

5. If $|x - 4| < 3$, which of the following is a possible value of x ?

(A) 1
(B) 4
(C) 7
(D) 10
(E) 13

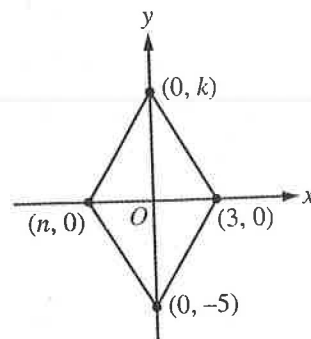
4. A long-distance telephone company charges a fee of \$0.90 for each call in addition to \$0.26 for each minute of the call. What is the price, in dollars, of a call that is x minutes long, where x is a positive integer?

(A) 1.16
(B) $1.16x$
(C) $0.64x$
(D) $0.9x + 0.26$
(E) $0.26x + 0.9$



6. If 3 consecutive integers have a sum of 63, what is the greatest of the 3 integers?

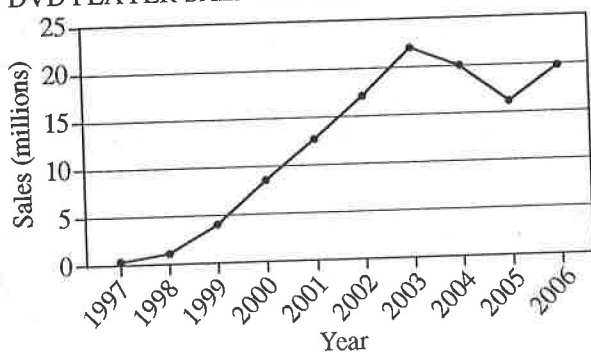
(A) 14
(B) 20
(C) 21
(D) 22
(E) 23



8. The figure in the xy -plane above is a parallelogram. What is the value of $n + k$?

(A) -8
(B) -2
(C) 0
(D) 2
(E) 8

DVD PLAYER SALES IN COUNTRY X, BY YEAR



7. The line graph above shows the number of DVD players sold in country X for each of the years 1997 to 2006. Of the following years, which one had sales closest to twice the sales of the previous year?

(A) 2000
(B) 2002
(C) 2004
(D) 2005
(E) 2006



9. A drawer contains paper clips, of which 8 are red, 9 are blue, and the rest are yellow. A paper clip is to be selected at random from the drawer. If the probability of selecting a blue paper clip is $\frac{1}{3}$, how many yellow paper clips does the drawer contain?

(A) 7
(B) 10
(C) 18
(D) 27
(E) 34

10. Circle P lies completely inside circle M . The radius of circle M is 9 inches. Which of the following must be true?

I. The area of circle P is 64π square inches.

II. The radius of circle P is greater than $\frac{9}{2}$ inches.

III. The diameter of circle P is less than 18 inches.

(A) I only
(B) II only
(C) III only
(D) I and III
(E) II and III

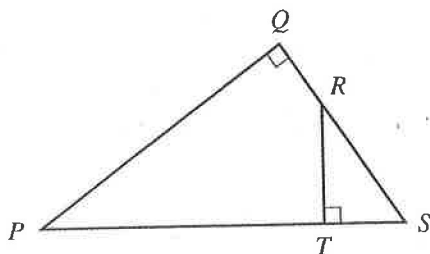
11. If $x^{x-y} = 25$ for positive integers x and y , which of the following is a possible value of y ?

(A) 1
(B) 2
(C) 3
(D) 4
(E) 5



12. On a number line, three points have coordinates r , s , and t , where $r < s < t$. Which of the following CANNOT be true?

- (A) $t < r + s$
(B) $t > r + s$
(C) $t = r + s$
(D) $s = \frac{r + t}{2}$
(E) $t = \frac{r + s}{2}$



Note: Figure not drawn to scale.

13. In the figure above, PQS and RTS are right triangles. If $PQ = 16$, $RS = 10$, and $ST = 6$, what does PT equal?
- (A) 6
(B) 8
(C) 10
(D) 12
(E) 14

14. If $\frac{1}{10} \leq x \leq 1$, for what value of x is the value of $10 + \frac{1}{x}$ greatest?

- (A) $\frac{1}{10}$
(B) $\frac{3}{10}$
(C) $\frac{7}{10}$
(D) $\frac{9}{10}$
(E) 1



15. In the xy -plane, line ℓ passes through the vertex of the parabola $y = 2(x - 1)^2 + 3$ and the point $(6, 3)$. What is the slope of line ℓ ?

(A) -1
(B) 0
(C) 1
(D) 2
(E) 3

16. The lengths of the sides of a triangle are 3, 5, and x . What are all possible values for x ?

(A) $x = 3$ or 5
(B) $x = 3, 4, 5, 6$, or 7
(C) $2 < x < 8$
(D) $3 \leq x \leq 7$
(E) $x \geq 3$

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.



SECTION 10

Time — 10 minutes

14 Questions

Turn to Section 10 (page 7) of your answer sheet to answer the questions in this section.

Directions: For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence—clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A) (B) (C) (D) (E)

1. In 1997, the ThrustSSC, a British-made car powered by two jet engines, have become the first land-traveling vehicle to break the sound barrier.

- (A) have become
- (B) were to become
- (C) becoming
- (D) become
- (E) became

2. Some of the novels for which Laura Esquivel has received the greatest critical acclaim and are examples of the literary style known as magical realism.

- (A) acclaim and are
- (B) acclaim are
- (C) acclaim,
- (D) acclaim, they are
- (E) acclaim, which are

3. Mother's Day is celebrated in a number of nations, but the date on which they fall differs from one nation to another.

- (A) on which they fall differs
- (B) on which it falls differs
- (C) which it falls on differing
- (D) on which they fall is different
- (E) which they fall on being different

4. A self-taught artist, the pottery of Lucy M. Lewis has been featured in many museums, including the Smithsonian Institution and the National Museum of the American Indian.

- (A) A self-taught artist, the pottery of Lucy M. Lewis has been featured
- (B) A self-taught artist, they featured the pottery of Lucy M. Lewis
- (C) A self-taught artist, Lucy M. Lewis' pottery has been featured
- (D) The pottery of Lucy M. Lewis, a self-taught artist who has been featured
- (E) The pottery of Lucy M. Lewis, a self-taught artist, has been featured



5. The museum acquired a dozen paintings from two private donors who were an art history professor at the local university.
- (A) who were an art history professor
(B) who was each an art history professor
(C) who were both art history professors
(D) both of whom were an art history professor
(E) which were both art history professors
6. To attract prey, a fish known as the red grouper restructures the ocean floor, digging holes to create the type of environment favored by smaller fish and spiny lobsters.
- (A) digging holes to create
(B) digging holes creates
(C) digging holes create
(D) it digs holes creating
(E) they dig holes to create
7. Built on the banks of the Mississippi River, it is often so humid in the city of Memphis during the summer that the air feels like steam.
- (A) it is often so humid in the city of Memphis during the summer that the air feels like steam
(B) the city of Memphis is often so humid during the summer that the air feels like steam
(C) the city of Memphis, which is often so humid that the air feels like steam during the summer
(D) during the summer the city of Memphis is often so humid to where the air feels like steam
(E) summer in the city of Memphis is often so humid that the air feels like steam
8. Dinosaurs captured the public's attention in the nineteenth century, and the scientists which found and will study dinosaur fossils were highly esteemed.
- (A) and the scientists which found and will study
(B) and the scientists who found and studied
(C) the scientists who found and studied
(D) the scientists finding and studying
(E) also the scientists which found and studied
9. The topography of the Ozark Mountains, having been shaped by the dissolution of limestone and other types of soluble rock, feature hundreds of geological wonders.
- (A) rock, feature
(B) rock, and featured
(C) rock, featuring
(D) rock, features
(E) rock to feature
10. In the early twentieth century, Modernist novelists such as James Joyce and Virginia Woolf experimented with literary form and narrative technique more than preceding centuries did.
- (A) more than preceding centuries did
(B) more than writers of preceding centuries did
(C) more than that in preceding centuries
(D) to a greater extent than preceding centuries
(E) to an extent greater than novels of preceding centuries
11. The stories Alex Haley heard as a youth inspired him to investigate his maternal ancestry and using his findings to write his highly successful novel, *Roots*.
- (A) ancestry and using his findings
(B) ancestry and his findings were used by him
(C) ancestry, he used his findings
(D) ancestry, and he used his findings
(E) ancestry, whose findings were used
12. The Jiaozhou Bay Bridge is among the longest bridges in the world; located in eastern China's Shandong province, it crosses Jiaozhou Bay, connecting the port city of Qingdao to the island of Huangdao.
- (A) world; located in eastern China's Shandong province, it crosses
(B) world, located in eastern China's Shandong province, it crosses
(C) world and is located in eastern China's Shandong province, it crosses
(D) world, it is located in eastern China's Shandong province, crossing
(E) world; located in eastern China's Shandong province, crossing



13. Textile production has a serious environmental impact, it consumes a significant amount of all the water used worldwide.

- (A) it consumes
- (B) its consumption is
- (C) this consumes
- (D) consuming
- (E) it has consumed

14. Given that goats and sheep were domesticated earlier than cattle, it is thought that the production of cheeses made from goat's and sheep's milk predate that of cheese made from cow's milk.

- (A) predate that of
- (B) predates that of
- (C) predated those of
- (D) have predated
- (E) predate

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section in the test.

Correct Answers and Difficulty Levels Form Codes AEKA, BWKA

Critical Reading

Section 2

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. E 1		13. C 3	
2. B 4		14. D 1	
3. E 3		15. E 2	
4. D 3		16. A 3	
5. B 4		17. A 2	
6. A 4		18. D 2	
7. A 4		19. D 2	
8. A 5		20. E 3	
9. B 2		21. C 4	
10. E 1		22. E 3	
11. A 2		23. D 3	
12. D 2		24. D 3	

Number correct

Number incorrect

Section 6

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. B 1		13. B 4	
2. D 1		14. C 1	
3. D 2		15. A 2	
4. C 3		16. E 2	
5. B 4		17. A 4	
6. B 3		18. E 4	
7. D 3		19. E 2	
8. A 4		20. A 4	
9. A 2		21. C 5	
10. B 3		22. D 5	
11. C 1		23. B 4	
12. D 5		24. D 5	

Number correct

Number incorrect

Section 8

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. B 2		11. B 3	
2. B 2		12. B 3	
3. A 3		13. C 1	
4. E 4		14. A 4	
5. A 4		15. D 3	
6. C 5		16. E 2	
7. D 5		17. A 3	
8. C 3		18. D 3	
9. A 1		19. E 4	
10. E 2			

Number correct

Number incorrect

Mathematics

Section 3

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. A 1		11. B 3	
2. E 1		12. D 3	
3. B 2		13. D 3	
4. B 1		14. D 3	
5. C 1		15. E 3	
6. C 1		16. E 4	
7. D 2		17. A 4	
8. C 3		18. D 4	
9. E 3		19. A 4	
10. A 3		20. D 5	

Number correct

Number incorrect

Section 7

Multiple-Choice Questions COR. DIFF. ANS. LEV.	Student-Produced Response Questions COR. ANS.
1. B 1	9. 5, 10, 15, 20, 30
2. C 1	10. 8
3. E 2	11. 1920
4. C 2	12. 7
5. B 4	13. 26
6. D 4	14. 145
7. A 4	15. 5/9, .555, .556
8. C 4	16. 1/4, .25
	17. 63
	18. 8/3, 2.66, 2.67

Number correct

Number incorrect

Number correct
(9-18)

Section 9

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. C 1		9. B 3	
2. A 2		10. C 3	
3. D 1		11. C 3	
4. E 1		12. E 3	
5. B 2		13. E 4	
6. D 2		14. A 3	
7. A 2		15. B 4	
8. D 2		16. C 4	

Number correct

Number incorrect

Writing Multiple-Choice

Section 5

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. E 1		10. B 4		19. E 2		28. A 5	
2. A 1		11. D 5		20. B 2		29. E 5	
3. E 1		12. B 1		21. A 2		30. E 3	
4. E 1		13. C 1		22. D 3		31. B 1	
5. D 3		14. B 1		23. D 3		32. A 2	
6. C 3		15. B 1		24. E 3		33. C 3	
7. A 3		16. C 1		25. C 3		34. E 3	
8. B 3		17. D 3		26. D 4		35. C 3	
9. D 3		18. C 2		27. B 5			

Number correct

Number incorrect

Section 10

COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.		COR. DIFF. ANS. LEV.	
1. E 1		6. A 2		11. D 3	
2. B 2		7. B 2		12. A 3	
3. B 2		8. B 3		13. D 3	
4. E 2		9. D 3		14. B 4	
5. C 2		10. B 3			

Number correct

Number incorrect

NOTE: Difficulty levels are estimates of question difficulty for a reference group of college-bound seniors.
Difficulty levels range from 1 (easiest) to 5 (hardest).

SAT Score Conversion Table Form Codes AEKA, BWKA

Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score	Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score
67	800			31	490	530	53
66	800			30	480	530	52
65	790			29	480	520	51
64	770			28	470	510	50
63	760			27	460	500	49
62	740			26	460	490	48
61	730			25	450	490	47
60	710			24	450	480	46
59	700			23	440	470	45
58	690			22	430	460	44
57	680			21	430	460	43
56	670			20	420	450	43
55	660			19	420	440	42
54	650	800		18	410	430	41
53	640	770		17	400	430	40
52	630	740		16	400	420	39
51	620	720		15	390	410	39
50	620	710		14	390	400	38
49	610	690	80	13	380	400	37
48	600	680	77	12	370	390	37
47	590	670	74	11	360	380	36
46	590	660	72	10	360	370	35
45	580	650	70	9	350	360	34
44	570	640	68	8	340	350	33
43	570	640	67	7	330	340	33
42	560	630	65	6	320	330	32
41	550	620	64	5	310	320	31
40	550	610	63	4	290	310	30
39	540	600	61	3	280	300	28
38	530	590	60	2	260	280	27
37	530	580	59	1	240	270	26
36	520	570	58	0	220	250	24
35	510	570	57	-1	200	230	22
34	510	560	56	-2	200	210	20
33	500	550	55	-3	200	200	20
32	490	540	54	and below			

This table is for use only with the test in this booklet.

SAT Writing Composite Score Conversion Table

Form Code AEKA

Writing MC Raw Score	Essay Raw Score											
	12	11	10	9	8	7	6	5	4	3	2	0
49	800	800	800	790	760	740	730	710	700	690	670	660
48	800	800	780	760	730	710	700	680	670	660	640	630
47	790	780	750	740	710	690	670	660	650	630	620	610
46	770	760	740	720	690	670	660	640	630	620	600	590
45	760	740	720	710	680	660	640	620	610	600	590	570
44	740	730	710	690	660	640	630	610	600	590	570	560
43	730	720	690	680	650	630	610	600	590	570	560	550
42	720	710	680	670	640	620	600	590	580	560	550	530
41	710	700	670	660	630	610	590	580	570	550	540	520
40	700	680	660	650	620	600	580	560	560	540	530	510
39	690	670	650	640	610	590	570	550	550	530	520	500
38	680	660	640	630	600	580	560	540	540	520	510	490
37	670	650	630	620	590	570	550	530	530	510	500	480
36	660	650	620	610	580	560	540	530	520	500	490	470
35	650	640	610	600	570	550	530	520	510	500	480	460
34	640	630	600	590	560	540	520	510	500	480	470	460
33	630	620	590	580	550	530	510	500	490	470	460	450
32	620	610	590	570	540	520	510	490	480	470	450	440
31	610	600	580	560	530	510	500	480	470	460	440	430
30	600	590	570	550	530	510	490	470	460	450	430	420
29	600	580	560	550	520	500	480	460	460	440	430	410
28	590	580	550	540	510	490	470	460	450	430	420	400
27	580	570	540	530	500	480	460	450	440	430	410	400
26	570	560	540	520	490	470	460	440	430	420	400	390
25	560	550	530	510	490	470	450	430	420	410	390	380
24	560	550	520	510	480	460	440	430	420	400	390	370
23	550	540	510	500	470	450	430	420	410	400	380	370
22	540	530	510	490	460	440	430	410	400	390	370	360
21	540	520	500	490	460	440	420	400	400	380	370	350
20	530	520	490	480	450	430	410	400	390	370	360	350
19	520	510	490	470	440	420	410	390	380	370	350	340
18	520	510	480	470	440	420	400	390	380	360	350	330
17	510	500	470	460	430	410	390	380	370	360	340	330
16	500	490	470	450	430	410	390	370	360	350	330	320
15	500	490	460	450	420	400	380	370	360	340	330	310
14	490	480	460	440	410	390	380	360	350	340	320	310
13	490	470	450	440	410	390	370	350	350	330	320	300
12	480	470	440	430	400	380	360	350	340	320	310	300
11	470	460	440	420	400	370	360	340	330	320	300	290
10	470	460	430	420	390	370	350	340	330	310	300	280
9	460	450	430	410	380	360	350	330	320	310	290	280
8	450	440	420	400	380	360	340	320	310	300	280	270
7	450	440	410	400	370	350	330	320	310	290	280	260
6	440	430	400	390	360	340	320	310	300	280	270	260
5	430	420	400	380	350	330	320	300	290	280	260	250
4	420	410	390	370	340	320	310	290	280	270	250	240
3	410	400	380	360	330	310	300	280	270	260	240	230
2	400	390	370	350	320	300	290	270	260	250	230	220
1	390	380	350	340	310	290	270	260	250	230	220	210
0	370	360	340	320	300	280	260	240	230	220	200	200
-1	360	350	320	310	280	260	240	230	220	200	200	200
-2	340	330	300	290	260	240	220	210	200	200	200	200
-3	320	310	280	270	240	220	200	200	200	200	200	200
and below												

This table is for use only with the test in this booklet.