Form Codes AEVZ, BWVZ

CollegeBoard

The SAT®

Question-and-Answer Service

January 2012 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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SAT®

Using Your Question-and-Answer Service (QAS) Report

This booklet contains the SAT® you took in January 2012, starting with all the essay prompts given in January, including the one you answered. It also includes scoring information. If the SAT you took included an unscored "equating" section, this booklet will not include that section.

Reviewing Your SAT Results

To make the best use of your personalized QAS report, we suggest that you:

- Read each question in the booklet, then check the report for the type of question, the correct answer, how you answered it and the difficulty level.
- Analyze test questions you answered incorrectly to understand why your answer was incorrect. Check see whether you might have misread the question or mismarked the answer.
- Keep track of how you did on the different types of questions (as labeled on your QAS report), either using the table below or by printing your online score report at **sat.collegeboard.org/scores**. This can help you understand your academic strengths and identify areas for improvement.

Section	Type of Question	Number Correct	Number Incorrect	Number Omitted
Critical Reading	C Sentence completion			
	R Passage-based reading			
Mathematics	N Number and operations			
	A Algebra and functions			
	G Geometry and measurement			
	D Data analysis, statistics and probability			
Writing Multiple-Choice	S Improving sentences			
	E Identifying sentence errors			
	P Improving paragraphs			

Reviewing Your Essay

View a copy of your essay online at **www.collegeboard.org/viewessay**. On the practice sheets in the back of this booklet, you can try writing your essay again or practice writing an essay for one of the other prompts in this booklet.

Scoring Your Test

Use the Scoring Worksheet, SAT Essay Scoring Guide and score conversion tables at the back of this booklet to verify the score on your test. Use the Form Code shown at the top of your personalized QAS report to loca your particular score conversion tables. The Scoring Worksheet and score conversion tables are specific to the test you took. Do not try to score any other tests using them.

Practicing to Take the SAT Again

If you decide to take the SAT again, your QAS results will help you identify the specific areas and types of questions to focus on for additional practice. Free practice resources are available on **sat.collegeboard.org/practice** including a practice test, additional practice questions, and a helpful tool called SAT Skills Insight™. SAT Skills Insight will show you the types of skills tested on the SAT and suggestions to help you improve your skills for next time.

Now that you're familiar with the test, you're more prepared for the kinds of questions on the SAT. You're al likely to be more comfortable with the test-taking process, including the time limits. On average, students wh take the SAT a second time increase their combined critical reading, mathematics and writing scores by about 40 points.

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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 test scores may be canceled.**

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.

> Most people tend to trust others too readily. To avoid being taken advantage of, however, it is generally wise to be doubtful and suspicious of others' motives or honesty. Many people would agree that if you find yourself doubting other people's sincerity or questioning their intentions, your instincts are probably correct. You are less likely to regret being cautious than being too trusting.

Assignment: Is it wise to be suspicious of the motives or honesty of other people, even those who appear to be trustworthy? 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.
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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.

> People who complain about progress and change expose themselves to criticism. Yet there is always a subtle danger in life's improvements and refinements, a drawback or disadvantage that occurs along with the benefits of progress. It sometimes seems that we devote half of our time to making what we call "improvements"—in our lives, our work, our relationships—but so often the original conditions had some quality that is lost in the process of change.
>
> Adapted from E. B. White, "Progress and Change"

Assignment: Does improvement or progress usually involve a significant drawback or problem of some kind? 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.

> Learning and doing are their own rewards. No external rewards are required. Yet when external rewards are introduced—whether attention and praise from parents or prizes from teachers—these rewards exert a substantial influence. Instead of reading books to find out about the world, kids will read to win prizes. Kids will produce for rewards, but the quality of their activity and their interest in it will be dramatically altered.
>
> Adapted from Barry Schwartz, *The Costs of Living*

Assignment: Is it wrong or harmful to motivate people to learn or achieve something by offering them rewards? 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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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.

> We almost always tend to treat people on the basis of what they have done: the star athlete is recognized and rewarded with a college scholarship, while the lawbreaker is prosecuted and punished. But our past deeds provide only a partial measure of our real worth as human beings. We should be treated according to what we are capable of accomplishing, regardless of what we may or may not have actually done.

Assignment: Should people be treated according to what they are capable of achieving instead of what they have actually done? 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.

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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Due to the ------ of architect Benjamin Banneker, the remarkable street plan for Washington, D.C., that had nearly been abandoned was ------ and carried out.

(A) artistry . . rejected
(B) persistence . . revived
(C) pessimism . . originated
(D) cautiousness . . postponed
(E) foresight . . ignored

2. Because marine algae indirectly remove atmospheric carbon dioxide, a major ------- in marine algae populations might result in ------- levels of carbon dioxide.

(A) transformation . . perceptible
(B) reduction . . elevated
(C) explosion . . increased
(D) decline . . stabilized
(E) change . . uniform

3. Keats's poetry was called ------- by those critics who noted that he indulged in sensuous imagery and luxuriant diction.

(A) voluptuous (B) imperious (C) sheepish (D) harmonious (E) pedantic

4. Even when offstage, the acting troupe exhibited the ------- behavior usually associated with histrionic temperaments.

(A) pessimistic (B) torpid (C) exaggerated (D) judicious (E) ingenuous

5. Danielle was easily the most ------- of her classmates, rarely willing to compromise or even listen to others' pleas.

(A) discreet (B) deferential (C) loquacious (D) obdurate (E) rapacious

GO ON TO THE NEXT PAGE

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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

One of the strangest and most enthralling aspects of blogs (online journals) is just how intensely personal they can be. People like me maintain personal blogs because they like the idea that there's a place where a record of their existence is kept—a house with an always-open door where people who are looking for you can check on you, compare notes with you, and tell you what they think of you. Sometimes that house is messy, sometimes horrifyingly so. In real life, we wouldn't invite any passing stranger into these situations, but the remove of the Internet makes it seem OK.

Passage 2

Something about the personal blog makes me distinctly uncomfortable. After several hours of reading these blogs, I often feel sick, as if I've watched too many tell-all talk shows on daytime television. I've learned too much I didn't need to know about too many people's everyday lives—lives without anything particularly extraordinary to recommend them, except the bloggers' own sense of importance. Some blogs make me feel guilty, as if I have been looking at texts that are too personal and not intended for me to see. But I must confess that when I find a blog I like, I frequent the site daily, anxious for new entries.

6. The authors of both passages

(A) criticize the development of a new technology
(B) offer personal views of a contemporary practice
(C) advocate participation in a creative enterprise
(D) suggest unconventional modes of personal expression
(E) mock common perceptions of a popular medium

7. Which generalization about personal blogs is supported by both passages?

(A) Writers often find personal blogs tedious to produce.
(B) The popularity of personal blogs is difficult to understand.
(C) Many of the issues discussed in personal blogs can be uninteresting to readers.
(D) Certain aspects of personal blogs are more acceptable on the Internet than they would be in real life.
(E) Private details are often exposed on personal blogs.

8. The author of Passage 2 would most likely consider the "passing stranger" (lines 9-10, Passage 1) to be

(A) an accurate characterization of a blog reader
(B) an inviting distraction to a blog writer
(C) an intrusion into the experience of reading a blog
(D) an unrealistic representation of the dangers of blogs
(E) a symbol of the fading popularity of blogs

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

(A) The author of Passage 1 views personal blogs as unique and individual, whereas the author of Passage 2 is interested in their broader cultural significance.
(B) The author of Passage 1 is a self-effacing blogger, whereas the author of Passage 2 believes that writing blogs is a self-aggrandizing pursuit.
(C) The author of Passage 1 finds the intimacy of personal blogs compelling, whereas the author of Passage 2 is ambivalent about that intimacy.
(D) The author of Passage 1 asserts that many blogs are well written, whereas the author of Passage 2 is embarrassed about the poor literary quality of many blogs.
(E) The author of Passage 1 argues that most blogs consider overarching social issues, whereas the author of Passage 2 feels that too many blogs focus on mundane minutiae.

GO ON TO THE NEXT PAGE

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Questions 10-15 are based on the following passage.

This passage is from a novel about an aspiring young writer living in London in 1950.

One day in the middle of the twentieth century, I sat in an old graveyard which had not yet been demolished, in the Kensington area of London, when a young policeman stepped off the path and came over to me. He was shy and smiling, he might have been coming over the grass to ask me for a game of tennis. He only wanted to know what I was doing but plainly he didn't like to ask. I told him I was writing a poem, and offered him a sandwich which he refused as he had just had his dinner, himself. He stopped to talk awhile, then he said good-bye, the graves must be very old, and that he wished me good luck and that it was nice to speak to somebody.

This was the last day of a whole chunk of my life but I didn't know that at the time. I sat on the stone slab of some Victorian grave writing my poem as long as the sun lasted. I lived nearby in a bed-sitting-room with a gas fire and a gas ring operated by pennies and shillings in the slot, whichever you preferred or had. My morale was high. I needed a job, but that, which should have been a depressing factor when viewed in cold blood, in fact simply was not. Neither was the swinishness of my landlord, a Mr. Alexander, short of stature. I was reluctant to go home lest he should waylay me. I owed him no rent but he kept insisting that I should take a larger and more expensive room in his house, seeing that I had overcrowded the small single room with my books, my papers, my boxes and bags, my food-stores and the evidence of constant visitors who stayed to tea or came late.

So far I had stood up to the landlord's claim that I was virtually living a double-room life for single-room pay. At the same time I was fascinated by his swinishness. Tall Mrs. Alexander always kept in the background so far as the renting of rooms was concerned, determined not to be confused with a landlady.

Her hair was always glossy black, new from the hairdresser, her nails polished red. She stepped in and out of the house with a polite nod like another, but more superior, tenant. I fairly drank her in with my mind while smiling politely back. I had nothing whatsoever against these Alexanders except in the matter of their wanting me to take on a higher-priced room. If he had thrown me out I would still have had nothing much against them, I would mainly have been fascinated. In a sense I felt that the swine Alexander was quite excellent as such, surpassingly hand-picked. And although I wanted to avoid him on my return to my lodging I knew very well I had something to gain from a confrontation, should it happen.

10. The policeman in the first paragraph is represented primarily as

(A) talkative
(B) prying
(C) confident
(D) polite
(E) overbearing

11. Lines 13-14 ("This was . . . time") are intended primarily to

(A) foreshadow future developments
(B) create a mood of melancholy
(C) highlight the narrator's inexperience
(D) exemplify the narrator's colloquial language
(E) hint at the narrator's previous misfortunes

12. In context, the phrase "in cold blood" (line 20) is best understood to mean

(A) maliciously
(B) rationally
(C) in a premeditated fashion
(D) with paralyzing fear
(E) with heartless detachment

13. The description of Mrs. Alexander in lines 32-38 ("Tall . . . tenant") suggests that the narrator views her as

(A) brooding and distant
(B) proud and aloof
(C) arrogant and ill-tempered
(D) judgmental and snide
(E) boring and unintelligent

GO ON TO THE NEXT PAGE

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14. In context, the statement in line 38 ("I fairly . . . mind") indicates that the narrator

(A) feels connected intellectually to Mrs. Alexander
(B) wishes she could be like Mrs. Alexander
(C) feels self-conscious in Mrs. Alexander's presence
(D) shuns Mrs. Alexander's company
(E) is captivated by Mrs. Alexander's style

15. The narrator's attitude toward her situation is best described as

(A) incredulous
(B) apprehensive
(C) contented
(D) ambivalent
(E) self-congratulatory

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Questions 16-24 are based on the following passage.

This passage is adapted from a book written by a physicist in 2004.

Although biological mechanisms do not work with the accuracy or stability of modern clocks, a sense of time and its rhythm is built into the functioning of the human body. Our heart, with its beating pulse, is the clocklike internal rhythm of which we are most aware. In his discovery of the law of the pendulum, which turned out to have the most profound effect on all later time-measuring devices, Galileo used—if legend can be believed—his own pulse beat as the test. There are, however, other biological timekeepers that play important roles in our lives. These inner clocks are generally very regular, but they can also be "reset" and will fall in step with a shifted rhythm. Even after we take a long flight across the Atlantic or Pacific, our lack of synchronization with the local time slowly disappears. The technical term, introduced in 1959, for the internal timer that keeps track of this 24-hour periodicity and retains it even in the absence of external cues is the circadian system (from the Latin *circa* for "about" or "approximately" and *dies* for "day"). Though known to biologists for over 200 years, biological clocks have been the subject of intensive research during the last half century.

The first human physiological variables that scientists observed to be governed by a circadian rhythm were pulse rate and body temperature. Even if a person rests in bed and fasts, his or her deep-body temperature will vary by almost one degree centigrade between its low in the early morning hours and a high late in the afternoon. More than 100 additional physiological and psychological variables are also subject to diurnal periodicities. For example, the speed with which children can do computations varies by about 10 percent between its slowest value in the early morning to a high before noon, dropping to a nadir in the early afternoon, rising again to a peak at about 6 o'clock and then falling off in the evening. This pattern was first measured in 1907 and replicated a half century later.

The extremely controversial question that arose immediately was to what extent this human circadian rhythm was an autonomous mechanism rather than a simple response to external signals, such as changes in the level of light, the times of meals, or social interactions with our surroundings. It has not been easy to find the answer, but careful laboratory experiments have led to the definite conclusion that our body contains an autonomous timekeeper. Individuals who volunteered to be kept in artificial isolation with no time cues of any kind also helped find the answer. In 1962 a French researcher spent two months in a cold cave, 375 feet underground in the Alps. The Frenchman called his aboveground supporters by telephone whenever he ate, went to sleep, and woke, and he recorded in detail his thoughts and impressions of the passage of time. He and all such explorers found themselves subject to definite internal time signals. It turned out, however, that the measured period of their bodily variables (all of which were consistent with one another), as well as their subjective impression of the time of day and their periods of sleep and waking, was slightly longer than 25 hours. By the time they emerged from their prolonged isolation, their internal timer was many hours out of phase with the external 24-hour clock.

Today, the autonomy of biological clocks is a well-established fact. Though running at a steady rate, our internal clock is "slow" by about an hour per day, but since it is continually automatically reset by cycles of light and dark, under normal circumstances the loss of time is not cumulative; our internal clock is entrained with the rhythm of the Sun.

16. The primary purpose of the passage is to

(A) describe a phenomenon and how it came to be understood
(B) discuss a problem and several possible solutions
(C) challenge a widely accepted point of view
(D) present a new theory and some ways of testing it
(E) explain the reasoning behind a discredited theory

17. In line 1, "work" most nearly means

(A) operate
(B) succeed
(C) strive
(D) produce
(E) influence

18. The statement between the dashes in line 8 ("if . . . believed") primarily serves to

(A) present a hypothesis
(B) explain an assertion
(C) qualify a statement
(D) reaffirm a historical account
(E) provide necessary evidence

19. The reference to a "long flight" (line 13) supports the idea that

(A) humans adjust to the natural rhythms around them
(B) humans should avoid unnecessary long-distance travel
(C) airplane flights are fatiguing for most people
(D) trans-Pacific flights take longer than trans-Atlantic flights
(E) not all people synchronize with the local time

GO ON TO THE NEXT PAGE

20. The sentence in lines 34-35 ("This . . . later") serves primarily to

(A) acknowledge the existence of a paradox
(B) support the validity of an observation
(C) describe the details of a finding
(D) challenge the results of an experiment
(E) emphasize the need for further research

21. Which of the following best expresses the "controversial question" referred to in line 36 ?

(A) Can the existence of human circadian rhythms be proved?
(B) How complex are human circadian rhythms?
(C) Has sufficient research been conducted on human circadian rhythms?
(D) Why do human circadian rhythms fluctuate so erratically?
(E) How independent of outside influences are human circadian rhythms?

22. The "French researcher" (line 46) probably chose the location he did primarily to

(A) eliminate any effects of the Sun
(B) enhance his ability to sleep soundly
(C) restrict his access to food and water
(D) ensure disruption to his internal clocks
(E) limit his communication with other humans

23. Based on the information in the passage as a whole, the "loss of time" would most likely be "cumulative" (lines 64-65) for a person who

(A) had an extremely irregular pulse rate
(B) slept just five hours a night on a regular basis
(C) fasted long enough to cause a reduction in deep-body temperature
(D) remained in a soundproof, lightproof isolation chamber for several weeks
(E) flew from New York City to Tokyo, then after several weeks flew back to New York

24. The tone of the passage is best described as

(A) argumentative
(B) pessimistic
(C) concerned and inquisitive
(D) playful and irreverent
(E) objective and instructive

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
18 Questions

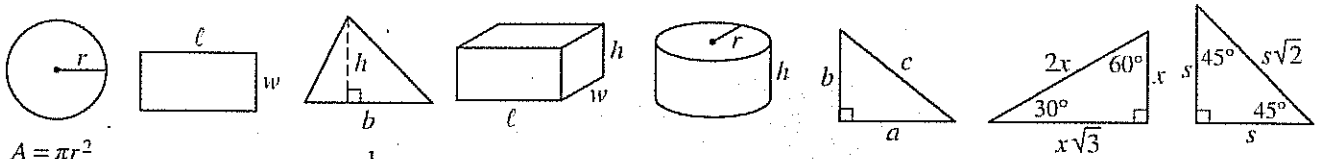
Turn to Section 3 (page 4) of your answer sheet to answer the questions in this section.

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. In the xy-plane, three of the four vertices of a square have coordinates $(2, 4)$, $(5, 4)$, and $(2, 1)$. What are the coordinates of the fourth vertex of the square?

(A) $(0, 0)$
(B) $(1, 2)$
(C) $(4, 5)$
(D) $(5, 1)$
(E) $(5, 8)$

2. If 5 times t is decreased by 8, which of the following represents the result?

(A) $8 - 5t$
(B) $5t - 8$
(C) $5(t - 8)$
(D) $5(8 - t)$
(E) $8(t - 5)$

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3. If f is a function and $f(3) = 5$, which of the following CANNOT be the definition of f?

(A) $f(x) = x - 2$
(B) $f(x) = x + 2$
(C) $f(x) = 8 - x$
(D) $f(x) = 2x - 1$
(E) $f(x) = 3x - 4$

PROJECTED SENIOR POPULATION OF THE UNITED STATES BY AGE AND GENDER IN 2050

Age Bracket	Male	Female
85 and over		
75–84		
65–74		
55–64		

represents 4 million people.

4. According to the pictogram above, in 2050 the male population in which age bracket is projected to make up two-fifths of the total population in that age bracket?

(A) 55–64
(B) 55–74
(C) 65–74
(D) 75–84
(E) 85 and over

5. The measures of the angles of $\triangle ABC$ are $a°$, $b°$, and $c°$. If $a + b = 110$ and $b + c = 105$, what is the value of b?

(A) 30
(B) 35
(C) 40
(D) 45
(E) 50

6. If S is the set of prime numbers between 1 and 20 and T is the set of all positive multiples of 3 or 5, how many numbers appear in both S and T?

(A) Five
(B) Four
(C) Three
(D) Two
(E) One

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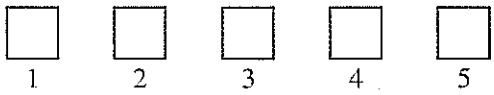
7. If $a^2 - 2ab + b^2 = ab$, then which of the following is equivalent to $a^2 + b^2$?

(A) $3ab$
(B) ab
(C) 0
(D) $-ab$
(E) $-3ab$



8. The letters A, B, C, D, and E are to be arranged in the boxes above, one in each box, in the following way. A must be between C and D, B must be next to E, and C cannot be in the first or fifth positions. How many different arrangements of these letters are possible?

(A) One
(B) Two
(C) Four
(D) Six
(E) Eight

GO ON TO THE NEXT PAGE

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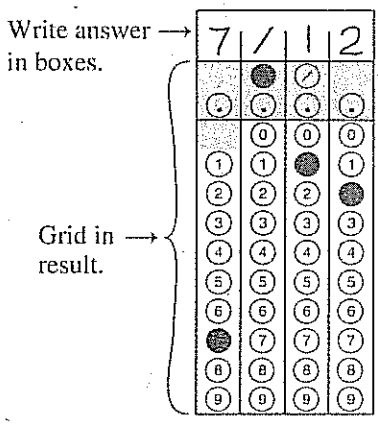
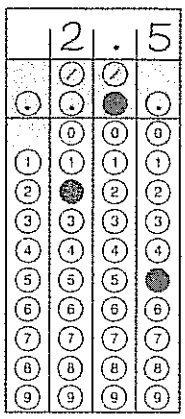
Directions: For Student-Produced Response questions 9-18, use the grids at the bottom of the answer sheet page on which you have answered questions 1-8.

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.

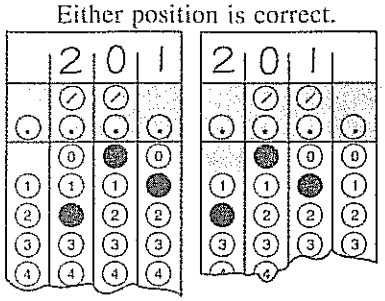
Answer: $\frac{7}{12}$



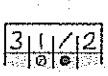
Answer: 2.5



Answer: 201
Either position is correct.

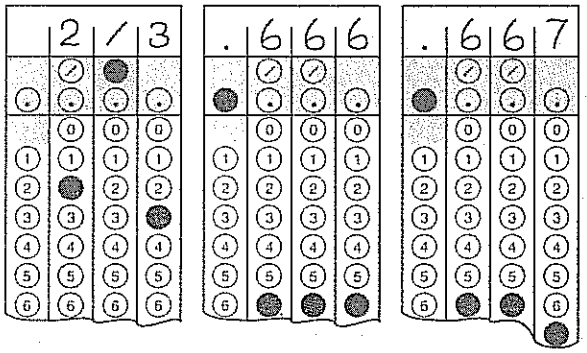


<u>Note:</u> You may start your answers in any column, space permitting. Columns not needed should be left blank.

- 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  is gridded, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)

- <u>Decimal Answers:</u> 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:



9. At a certain camp, the counselor-to-camper ratio is 2 to 9. If the camp has 18 counselors, how many campers does it have?

10. If $\frac{3}{4}x = \frac{3}{4}$, what is the value of $\frac{3}{4} + x$?

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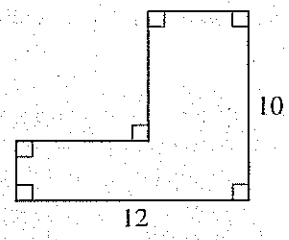
CALORIES YIELDED FROM NUTRIENTS

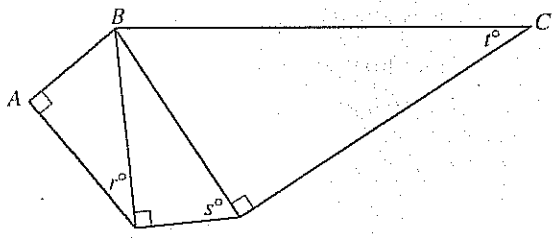
Nutrient	Calories per Gram
Carbohydrates	4
Protein	4
Fat	9

11. According to the table above, what is the total number of calories yielded from 200 grams of protein and 100 grams of fat?



12. What is the perimeter of the six-sided figure above?

13. For a dog that weighs w pounds and is x inches long to qualify for a certain competition, the difference between w and $\frac{3}{2}x$ can be no more than 5. If a dog with length 24 inches qualifies for the competition, what is one possible weight, in pounds, of this dog?



14. In the figure above, $\angle ABC$ has measure 140°. What is the value of $r + s + t$?

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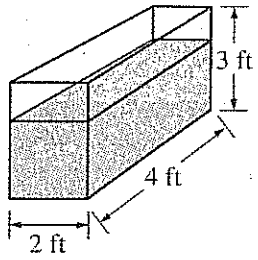
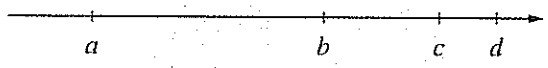
$$x + y + z = 500$$
$$x - y - z = 200$$

15. According to the equations above, what is the value of $y + z$?

16. In the xy-plane, the line with equation $y = 8 - \frac{4}{3}x$ intersects the x-axis and y-axis at the points A and B, respectively. What is the length of line segment $\overline{AB}$?



17. The inner dimensions of a closed rectangular tank are shown in the figure above. There is 16 cubic feet of water in the tank. The tank will be repositioned on level ground so that it rests on one of the faces that has the least area. What will be the height, in feet, of the water after the tank has been repositioned?



18. On the number line above, tick marks are spaced so that the distance from a to b is twice the distance from b to c and the distance from b to c is twice the distance from c to d. If a, b, c, and d are positive integers, what is the smallest possible value of d?

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.

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SECTION 4

Time — 25 minutes
24 Questions

Turn to Section 4 (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.

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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Jacob felt great ------- about his upcoming trip to Brazil; indeed, he could hardly contain his enthusiasm.

(A) concern (B) uncertainty (C) confusion
(D) generosity (E) excitement

2. The professor's classroom manner was quite -------, never revealing the warmth and playfulness she showed in private.

(A) witty (B) sincere (C) lively
(D) formal (E) friendly

3. Instead of taking notes during the interview, the journalist recorded the celebrity's remarks on tape and later ------- them.

(A) disavowed (B) transcribed (C) anticipated
(D) retracted (E) recollected

4. Like several other important advances in medicine, penicillin was a somewhat ------- discovery resulting from ------- combination of blind chance and technical expertise.

(A) progressive . . a reliable
(B) wonderful . . an unlucky
(C) untimely . . a profitable
(D) ordinary . . an unfortunate
(E) accidental . . a favorable

5. Author Luis Zalamea calls novel writing a ------- experience, one that cleanses him of feelings of rebellion and frustration.

(A) subliminal (B) perpetual (C) stupefying
(D) cathartic (E) corrosive

6. The scientist was ------- in her evaluation of her own research, choosing to analyze and report on seemingly ------- results as well as those that were more expected.

(A) meticulous . . aberrant
(B) resolute . . embryonic
(C) deferential . . convoluted
(D) objective . . quotidian
(E) myopic . . unequivocal

7. Writer John Worthen suggested that, in some cases, biographers should be -------, considering all available details rather than making ------- a first principle.

(A) forthright . . relevance
(B) cynical . . incrimination
(C) inclusive . . selection
(D) libelous . . discrimination
(E) comprehensive . . drudgery

8. Grover Pease Osborne's 1893 economics treatise was remarkably ------- since it foresaw that technological advances would increase the availability of natural resources.

(A) naïve (B) tenacious (C) prescient
(D) influential (E) intelligible

GO ON TO THE NEXT PAGE

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 9-10 are based on the following passage.

The package that arrived yesterday contained foliage from the most famous tamarind tree in India, the tree that spreads over the tomb of the legendary singer Tansen, who brought on the rains just by singing about them, and whose golden voice caused the Emperor Akbar to proclaim him one of the nine gems of his court. Even today, Tansen's reputation is such that singers travel to his tomb to pluck foliage from the branches to make into throat concoctions, hoping their voices will become as pure as that of their illustrious predecessor, he who had caused the palace lamps to light up just by singing the *Deepak Raag* four centuries ago.

9. The narrator refers to the "rains" (line 4) and the "palace lamps" (lines 10-11) primarily to

(A) explain the purpose of a practice
(B) illustrate the depths of a passion
(C) dramatize the magnitude of a talent
(D) emphasize the soundness of a belief
(E) show the consequences of a decision

10. The passage implies that the "singers" (line 7) view Tansen with

(A) consternation
(B) ambivalence
(C) wariness
(D) pride
(E) awe

Questions 11-12 are based on the following passage.

Archaeologists have traditionally thought that the rise of agriculture required early farmers to settle down near their crops. But new findings suggest that Çatalhöyük, Turkey—a large Neolithic village of such early farmers—was smack in the middle of marshy wetlands. Archaeologist Arlene Rosen's analysis of fossil remains of wheat and barley found at Çatalhöyük indicates that the grain was grown in a dry area. Some experts reject the implication that Çatalhöyük's farmers cultivated distant fields, since large quantities of grain would have had to be transported. However, archaeobotanist Eleni Asouti has shown that the wood used for construction at Çatalhöyük grew at least twelve kilometers away from the village.

11. Which of the following, if true, would most challenge the "implication" (line 8) ?

(A) Çatalhöyük's farmers obtained through trade the wheat and barley that Rosen analyzed.
(B) Çatalhöyük's farmers understood the impact of soil conditions on crop productivity.
(C) Çatalhöyük's farmers alternated on an annual basis the crops they planted.
(D) Çatalhöyük's farmers shared wheat and barley fields with neighboring villages.
(E) Çatalhöyük's farmers used wood that deteriorated in the damp environment.

12. The author mentions Asouti's research most likely because it

(A) undermines the claim that the villagers somehow transported materials across distances
(B) reinforces archaeologists' traditional view of the rise of agriculture
(C) provides support for the view that Çatalhöyük's farmers could have cultivated distant fields
(D) offers a unique perspective on Neolithic farming practices
(E) qualifies Rosen's theories about the Çatalhöyük farmers

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Questions 13-24 are based on the following passages.

Passage 1 is adapted from a 2000 book written by a historian; Passage 2 is adapted from a 1990 autobiography of a well-known African American photographer.

Passage 1

In the mid-1930s, photographer Margaret Bourke-White wrote an essay in which she explained (perhaps to herself as much as to the reading public) the significance of a photographer's "point of view." She claimed that this aspect was paramount, transcending all the necessary, technical elements in the image-making process. The principal questions Bourke-White posed in the essay reveal a personal test of sorts in judging a photographer's point of view—"How alive is he? Does he know what is happening in the world? How sensitive has he become during the course of his own photographic development to the world-shaking changes in the social scene about him?" Here the ideal photographer proves his or her worthiness in the profession by having developed a social consciousness along the way; the extent to which he or she may be taken seriously as a professional rides on a level of sensitivity to social issues.

If Bourke-White came to documentary photography through a desire to bring her work closer to the "realities of life," as she wrote in 1936, she probably recognized the advantages that words could offer her images. At the same time that Bourke-White's pictures of people needed supportive text, Southern novelist Erskine Caldwell's words about people needed pictures. In 1936 Caldwell found himself in search of "the best photographer available." He intended to make a comprehensive survey of the American South in an attempt to prove that the social problems portrayed in his best-selling fiction posed genuine challenges. Critics and censors had railed against Caldwell's stories for misrepresenting the South during that era by dwelling on the effects of illiteracy, racism, and poverty. Caldwell hoped to change their minds with a new piece of nonfiction that would be filled with telling photographs. His show of faith in the camera as a recorder of truth and photography as an objective medium placed Caldwell squarely within a mainstream intellectual mentality that wholeheartedly embraced photographs, giving the images credibility as powerful articles of truth.

Early in 1936 the novelist contacted Bourke-White. She accepted his offer with enthusiasm. On the trek that the novelist and the photographer took through seven Southern states, Bourke-White would get many opportunities to prove her sensitivity to the "world-shaking changes in the social scene."

Passage 2

When I arrived in Washington, D.C., in January 1942, I was surprised to find that life there embodied some of the bigotry then prevalent in other parts of the United States. Roy Stryker,[1] who hired me, met my dismay with advice.

"You brought a camera to town with you," Stryker told me. "If you use it intelligently, you might help turn things around. It's a powerful instrument in the right hands." Speaking of bigots, he said, "It's not enough to photograph one of them and label his photograph *bigot*. Bigots have a way of looking like everyone else. You have to get at the source of their bigotry. And that's not easy. That's what you'll have to work at, and that's why I took you on. Read. Read a lot. . . . Go through these picture files. They have a lot to say about what's happening here and other places throughout this country. They are an education in themselves."

When our department was disbanded a year later, what I had learned in that time outdistanced the bigotry to which I had been subjected, and the experience had proved to be crucial to my training as a documentary journalist—far more important than those technical aspects involving the use of a camera. I had been forced to take a hard look backward at Black history; to realize the burdens of those who had lived through it. Now, I was much better prepared to face up to the history yet to be made, the events to come. Another significant realization had taken hold—a good documentary photographer's work has as much to do with his heart as it does with his eye. I had learned that the camera can lie; that not only was it capable of being untruthful, but also that it could be Machiavellian.[2] It all depended how its users chose to see things. With deliberate intent, the most righteous human being could be made to look evil. What individuals actually stand for, good or bad, now urges me to try to catch the truth of them. I learned to use the camera as a means of persuasion as long as that persuasiveness is conducted with a sense of fair play. Yet, I remained aware of the possibility that what may appear as truth to me may not be acceptable as truth to others. That's the way things are.

[1] a government official and photographer best known for heading the documentary photography project of the Farm Security Administration during the Depression

[2] unscrupulous and cunning

13. Both Bourke-White (Passage 1) and the author of Passage 2 believe that the technical skills needed for documentary photography

(A) do not receive the attention they deserve
(B) cannot be acquired quickly or easily
(C) can pose a financial hardship to the photographer
(D) are less important than the photographer's insights into the subject matter
(E) should be standardized so that professional photographers learn the same basic skills

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14. Which question would the author of Passage 2 most likely feel needs to be added to the list of questions in lines 9-12, Passage 1 ("How . . . him")?

(A) Can he accept the criticism of more experienced observers?
(B) Does he avoid distorting his subjects?
(C) Does he realize the time required to hone his skills?
(D) Is he aware of problems in the world around him?
(E) Is he tolerant of human weaknesses?

15. In line 11, "course" most nearly means

(A) progression
(B) direction
(C) serving
(D) class
(E) race

16. In line 16, "rides" most nearly means

(A) depends
(B) travels
(C) continues
(D) sails
(E) conveys

17. Caldwell (Passage 1) and Stryker (Passage 2) share which assumption about documentary photographs?

(A) They are likely to be popular, even among those they criticize.
(B) They can promote harmony among different groups of people.
(C) They can persuade skeptical viewers that social injustices do exist.
(D) They are useful in convincing leaders to take action.
(E) They should present human experience as dignified and inspiring.

18. In line 49, Stryker comments on the "camera" primarily to

(A) sympathize with the author about the difficulties of his new job
(B) compliment the author's diligence
(C) encourage the author's interest in politics
(D) offer a solution to the author's dissatisfaction
(E) warn the author about being too idealistic

19. In lines 55-56 ("That's . . . on"), Stryker's point is that the author was hired to

(A) capture subtle evidence of an attitude
(B) depict a range of emotional reactions
(C) record national events of historic significance
(D) analyze relationships among individuals
(E) portray distinctive personalities favorably

20. Bourke-White would most likely interpret lines 66-69, Passage 2 ("I had . . . come"), as an

(A) argument for the need to anticipate future crises
(B) example of a commonplace view of photography
(C) illustration of a fascination with world history
(D) expression of a concern about a profession
(E) indication of the essential qualifications of a photographer

21. The passages imply that Bourke-White, Caldwell, and Stryker share which assumption about people?

(A) When people act collectively, they get better results.
(B) When people propose social reforms, they must anticipate opposition.
(C) People have always wanted to improve their living conditions.
(D) People who set out to change the world are overly optimistic.
(E) People should be aware of the problems of their society.

22. In line 69, the author uses the word "history" to refer to

(A) major changes in political leadership
(B) social challenges that lay in the future
(C) written records accompanying photographs
(D) unexpected discoveries that shocked society
(E) surprising patterns in his personal life

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23. Which aspect of Caldwell's project (Passage 1) best illustrates the "possibility" mentioned in lines 80-82, Passage 2 ("Yet . . . others") ?

(A) The earlier commercial success of Caldwell's fiction
(B) The scope of Caldwell's intended survey
(C) The earlier objections to Caldwell's stories
(D) The use of photographs to support the written word
(E) The expected public effect of Caldwell's finished book

NOTE: Item #24 not included for scoring

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.

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SECTION 5

Time — 25 minutes
20 Questions

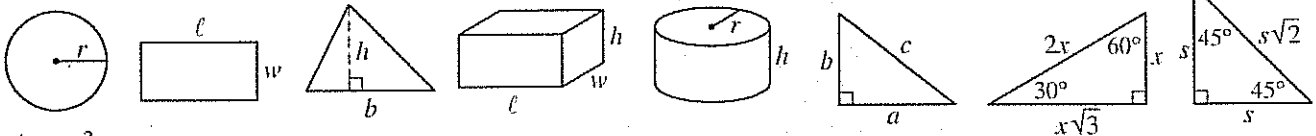
Turn to Section 5 (page 5) of your answer sheet to answer the questions in this section.

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. The value of 4.25×10^k lies between 400 and 500. If k is an integer, what is the value of k?

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

2. Which of the following is equivalent to $(-x)(-x)(-x)$?

(A) $-3x^3$
(B) $-3x$
(C) $-x^3$
(D) $3x$
(E) x^3

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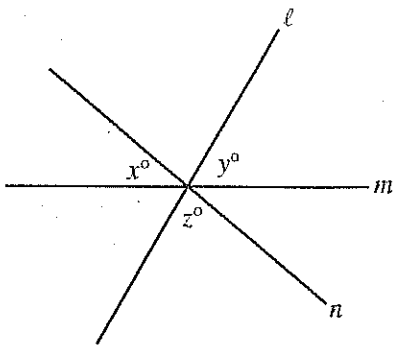
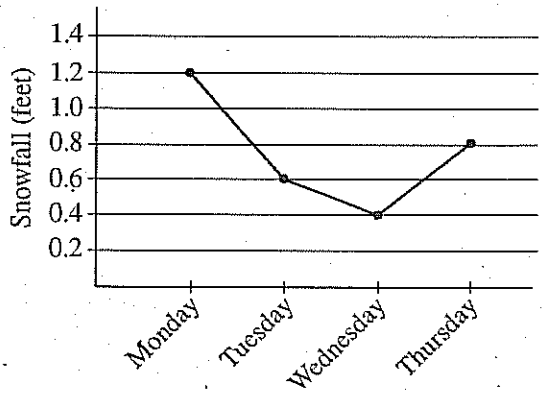


3. In the figure above, $x = 40$ and $y = 60$. What is the value of z ?

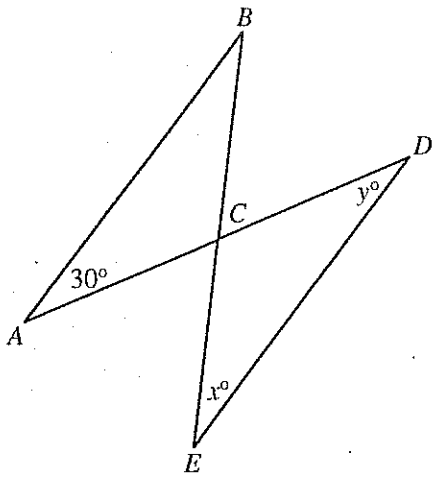
(A) 100
(B) 80
(C) 60
(D) 50
(E) 40

DAILY SNOWFALL AT SKI COUNTRY LODGE



4. The graph above shows the daily snowfall at Ski Country Lodge for four days. Based on the graph, what is the difference between the maximum and minimum daily snowfall, in feet, for the four days?

(A) 0.2
(B) 0.4
(C) 0.6
(D) 0.8
(E) 1.0



5. In the figure above, $\overline{AB} \parallel \overline{DE}$ and $AC = BC$. What is the value of $x + y$?

(A) 30
(B) 45
(C) 55
(D) 60
(E) 90

6. If x and y are integers such that $x^y = 1$ and $xy = 1$, what is the value of y^x ?

(A) −1
(B) 0
(C) 1
(D) 1.5
(E) 2

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7. In an xy-coordinate system, points P and Q have coordinates $(2,1)$ and $(4,2)$, respectively. Which of the following are coordinates of a point on the line through P and Q?

(A) $(6,3)$
(B) $(6,4)$
(C) $(6,5)$
(D) $(6,6)$
(E) $(6,8)$

8. For all integers x, y, and z, let $(x, y, z)\blacktriangle$ be defined by $(x, y, z)\blacktriangle = x^2 + y^2 + z^2$. What is the value of $\dfrac{(1, 2, 3)\blacktriangle}{(3, 2, 1)\blacktriangle}$?

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

9. Deer will come into the Jacksons' flower garden and eat the flowers only when either daisies or roses are growing in their garden. However, deer will not come into their garden and eat the flowers if their dog is in the yard next to the garden. Which of the following statements must be true?

(A) If the deer did not eat the Jacksons' flowers today, then roses are not growing in their garden.
(B) If the deer ate the Jacksons' flowers today, then their dog was not in the yard next to their garden.
(C) If the Jacksons' dog is not in the yard next to their garden today, then the deer will eat their flowers.
(D) If the Jacksons' dog is in the yard next to their garden today, then daisies are not growing in their garden.
(E) If daisies are growing in the Jacksons' garden today, then the deer will eat their flowers.

10. In a list of 100 numbers, the fraction of numbers greater than 15 is $\frac{19}{25}$ and the fraction of numbers less than 15 is $\frac{7}{50}$. How many numbers in the list are equal to 15?

(A) 10
(B) 24
(C) 49
(D) 55
(E) 74

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11. Solomon walks his neighbor's dog once every day and cuts his neighbor's lawn once each week. He earns \$3 each time he walks the dog and \$25 each time he cuts the lawn. Which of the following expressions represents the amount, in dollars, that he earns in w weeks?

(A) $3w + 25$
(B) $25w + 3$
(C) $28w$
(D) $40w$
(E) $46w$

2, 3, 4, 5, 6, 6, 6, 7, 8, 9, 10

12. Which of the following is true about the average (arithmetic mean), median, and mode of the 11 numbers listed above?

(A) The average, median, and mode are all different.
(B) The average and median are the same, but the mode is different.
(C) The average and mode are the same, but the median is different.
(D) The median and mode are the same, but the average is different.
(E) The average, median, and mode are all the same.

$$d(t) = 1.2t^2$$

13. The function d, defined above, models the distance in feet that a ball rolls down an inclined ramp in t seconds. According to this model, how many seconds would it take the ball to roll down 120 feet of the ramp?

(A) 10
(B) 13
(C) 26
(D) 100
(E) 120

14. In the xy-coordinate plane, P and Q are different points that have the same y-coordinate and lie on the parabola whose equation is $y = x^2 - 3x - 40$. What is the x-coordinate of the midpoint of $\overline{PQ}$?

(A) 0
(B) $\frac{1}{2}$
(C) 1
(D) $\frac{3}{2}$
(E) 2

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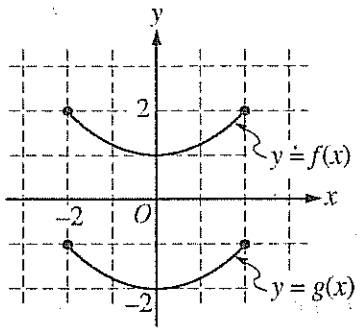
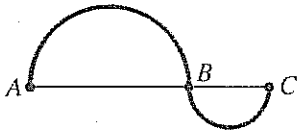
15. A triangle with a perimeter of 20 has a side of length 5. Which of the following is a possible length for a second side of the triangle?

(A) 5
(B) 7
(C) 10
(D) 12
(E) 14



16. The complete graphs of the functions f and g are shown in the xy-plane above. Which of the following could be equal to $g(x)$?

(A) $3 \cdot f(x)$
(B) $f(x-3)$
(C) $f(x+3)$
(D) $f(x)-3$
(E) $f(x)+3$



17. In the figure above, the two semicircles have radii of lengths j and k, respectively. Which of the following expressions gives the length of the darkened curved path shown from A to C?

(A) $jk\pi$
(B) $j^2k^2\pi$
(C) $(j+k)\pi$
(D) $\dfrac{j+k}{\pi}$
(E) $\dfrac{j\pi}{2}+\dfrac{k\pi}{2}$

$p = ks$, where k is a constant.
$s = nt$, where n is a constant.

18. Two relationships involving the variables p, s, and t are given above. Which of the following must be true?

(A) p is directly proportional to t.
(B) p is directly proportional to t^2.
(C) p is equal to t.
(D) p is directly proportional to $\dfrac{1}{t}$.
(E) p is directly proportional to $\dfrac{1}{t^2}$.

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$12^{10},\ 12^{10}+12^{10},\ 12^{10}+12^{10}+12^{10},\ldots$

19. In the sequence above, the first term is 12^{10} and each term after the first is 12^{10} more than the preceding term. Which term in the sequence is equal to 12^{12} ?

(A) The 3rd term
(B) The 12th term
(C) The 24th term
(D) The 120th term
(E) The 144th term

20. A square with an area of 2 is inscribed in a circle. What is the area of the circle?

(A) π
(B) π^2
(C) 2π
(D) $2\sqrt{2}\pi$
(E) 4π

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.

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SECTION 7

Time — 25 minutes
35 Questions

Turn to Section 7 (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.

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 <u>and she was sixty-five years old then</u>.

(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

Ⓐ ● Ⓒ Ⓓ Ⓔ

1. After she won a gold medal in figure skating at the 1956 Olympic Games, Tenley Albright attended medical <u>school and becoming</u> a surgeon.

   (A) school and becoming
   (B) school and became
   (C) school, also became
   (D) school, she became
   (E) school; also becoming

2. In his *Star Wars* films, director George <u>Lucas is a contemporary mythmaker, plus being</u> a master of special effects.

   (A) Lucas is a contemporary mythmaker, plus being
   (B) Lucas, a contemporary mythmaker, moreover
   (C) Lucas is a contemporary mythmaker as well as
   (D) Lucas, who is a contemporary mythmaker and also
   (E) Lucas is a contemporary mythmaker, he is also

3. Because of geothermal changes beneath Old Faithful, the frequency and duration of the geyser's <u>eruptions are now more predictable</u>.

   (A) eruptions are now more predictable
   (B) eruptions, they are now more predictable
   (C) eruptions are predicted more easier now
   (D) eruptions being easier to predict than before
   (E) eruptions, they can now be predicted more easily

4. Founded in 1919, the <u>aim of the Bauhaus School was</u> to create a revolutionary modern style that would unite art and mass production.

   (A) aim of the Bauhaus School was
   (B) aim of the Bauhaus School having been
   (C) Bauhaus School, whose aim was
   (D) Bauhaus School aiming
   (E) Bauhaus School aimed

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5. Coleman Hawkins is often called the "father of the tenor saxophone" on account of he was the first to realize the instrument's expressive powers.

   (A) saxophone" on account of he was
   (B) saxophone" because he was
   (C) saxophone" due to him being
   (D) saxophone," which he was
   (E) saxophone," he was

6. The ship will not leave port until every one of the crew members have been examined by a physician and given a clean bill of health.

   (A) have been
   (B) has been
   (C) had been
   (D) are
   (E) were

7. It appears that either Jane or Marek will be elected to be presidents of the student union.

   (A) to be presidents
   (B) as presidents
   (C) presidents
   (D) for president
   (E) president

8. Apparently honoring the actor's desire for a flattering biography, there is no mention by the author of any of the scandals in which her subject was involved.

   (A) there is no mention by the author of any of the scandals in which her subject was involved
   (B) none of the scandals in which her subject was involved is mentioned by the author
   (C) none of the scandals in which her subject was involved are mentioned by the author
   (D) the author does not mention any of the scandals in which her subject was involved
   (E) the author mentions none of the scandals in which her subject were involved

9. An odd friendship in certain respects, she being an outdoor enthusiast and he a dedicated bookworm.

   (A) An odd friendship
   (B) As an odd friendship
   (C) Their friendship being odd
   (D) Theirs was an odd friendship
   (E) Having a friendship that was somewhat odd

10. Each of the men who attended the meeting were suspected to be a spy.

    (A) were suspected to be a spy
    (B) were suspected to be spies
    (C) were suspected of being spies
    (D) was suspected of being spies
    (E) was suspected of being a spy

11. The island of Madagascar, off the coast of Africa, is the habitat of more than 200,000 species of plants and animals, many are not found anywhere else on the planet.

    (A) animals, many are not found anywhere
    (B) animals; many, not found anywhere
    (C) animals; of which many are not found anywhere
    (D) animals, many found nowhere
    (E) animals, finding many nowhere

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

Ⓐ ● Ⓒ Ⓓ Ⓔ

12. This film has earned (A) more money (B) from (C) ticket sales than have (D) its closest competitor for the Best Documentary Feature Film Award. No error (E)

13. Dr. Ling strongly (A) encouraged each of (B) us contacting (C) our federal and state representatives and urge them to increase (D) funding for elementary school music programs. No error (E)

14. In the years following (A) the Second World War, as millions of soldiers returned to civilian life, the demand for (B) housing will cause (C) a massive expansion of (D) suburbs. No error (E)

15. Because (A) they build (B) nests on telephone poles as readily (C) as they do in trees, ospreys adapting (D) well to various environments. No error (E)

16. Whiptails, the more speedier (A) of lizards, are remarkable creatures because (B) in thirteen of the known (C) species the females reproduce without (D) mating with males. No error (E)

17. Scientists have discovered that walnut trees respond to (A) environmental stresses such as (B) drought by producing (C) significant amounts of (D) a substance similar to aspirin. No error (E)

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18. For our hike, my two companions and I (A) had chose (B) to walk along the Appalachian Trail, one of (C) the oldest and best-loved (D) hiking paths in the United States. No error (E)

19. When people see (A) Lake Michigan for the first time, he or she (B) may think that it (C) looks more like (D) an ocean than a lake. No error (E)

20. Teeming with (A) hundreds of species of tropical fish, the clear (B) waters of the Caribbean Sea provide (C) a paradise for (D) scuba divers. No error (E)

21. The museum's latest exhibition, featuring (A) the works of several relatively young (B) artists, have been (C) praised in reviews by (D) influential art critics. No error (E)

22. The proposed environmental legislation would devote (A) billions of dollars in (B) federal grants to (C) conservation activities such as acquiring new public lands, preserving coastal habitats, and to establish (D) urban parks. No error (E)

23. Though the island was formed by (A) volcanic action long ago (B), volcanic activity still threatens (C) its inhabitants occasionally (D). No error (E)

24. Damselflies closely (A) resemble dragonflies except that (B) when at rest an adult damselfly holds its wings parallel to the (C) body, while a dragonfly holds theirs (D) perpendicular to the body. No error (E)

25. Each girl in my class (A) wanted (B) to have a *quinceañera*—an elaborate party with plenty of (C) food and dancing—to celebrate her (D) fifteenth birthday. No error (E)

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26. Experts who decipher (A) ancient written languages report (B) that the Indus civilization's script is more difficult (C) to decode than other civilizations. (D) No error (E)

27. Although both (A) birds are known for their distinctive (B) songs, but the rufous songlark has a sweeter (C) song than has (D) the brown songlark. No error (E)

28. Because (A) sound waves travel faster (B) in liquids than they do (C) in gases, the speed of sound in water is greater than that of sound (D) in the air. No error (E)

29. Mary Whiton Calkins was an imminent (A) psychologist and philosopher whose (B) research focused on (C) such topics as (D) memory, consciousness, and dreams. No error (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) The word "dinosaur" is derived from two Greek words meaning "terrifying lizard." (2) This fact might therefore lead you to think that today's reptiles—including lizards—are descended from dinosaurs. (3) Modern reptiles are probably not directly related to the dinosaurs. (4) Instead, it is birds, not reptiles, that most scientists now think are the dinosaurs' true descendants. (5) Some even say that birds *are* dinosaurs—dinosaurs as they have evolved over millions of years. (6) That claim may sound incredible. (7) It is based on extensive fossil evidence.

(8) A definite evolutionary connection between birds and dinosaurs was first uncovered in 1861. (9) The fossil was the petrified remains of an animal that in many respects resembled a small, winged dinosaur. (10) There was, similarly, one astonishing difference between this fossil and any dinosaur fossil previously found. (11) The newly discovered animal's body was covered with fully developed feathers. (12) Scientists gave the creature the name Archaeopteryx, which means "ancient wing" in Greek, and declared it a transitional species between dinosaurs and birds. (13) Ancient Greek is a language that lends itself to forming logical compound words such as these.

(14) In the years since that discovery, scientists have unearthed other unique fossils. (15) These fossils show that dinosaurs and birds share many common skeletal features. (16) They reveal that several species of dinosaurs had what look like primitive feathers. (17) They indicate that some dinosaurs brooded over their nests, much as chickens do. (18) There is even fossil evidence that a few dinosaurs had four-chambered hearts. (19) That means that they may have been warm-blooded—just like birds but unlike modern reptiles, which are all cold-blooded.

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30. In context, which of the following would be best to place at the beginning of sentence 3 (reproduced below) ?

Modern reptiles are probably not directly related to the dinosaurs.

(A) In any case,
(B) It is believed that
(C) As it turns out, though,
(D) They now say that
(E) Moreover, it appears that

31. In context, which is the best way to revise and combine sentences 6 and 7 (reproduced below) ?

That claim may sound incredible. It is based on extensive fossil evidence.

(A) As incredible as that claim may sound, it is based on extensive fossil evidence.
(B) That claim may sound incredible, but he based it on extensive fossil evidence.
(C) The claim is based on extensive fossil evidence, but they sound incredible to us.
(D) That claim sounds incredible; it will need to be based on extensive fossil evidence.
(E) Based on extensive fossil evidence, that claim may yet have sounded incredible.

32. In context, which of the following would be the most effective revision of the underlined portion of sentence 10 (reproduced below) ?

There was, <u>similarly</u>, one astonishing difference between this fossil and any dinosaur fossil previously found.

(A) obviously
(B) however
(C) they claimed
(D) therefore
(E) in retrospect

33. In context, which is the best way to deal with sentence 13 (reproduced below) ?

Ancient Greek is a language that lends itself to forming logical compound words such as these.

(A) Insert it immediately after sentence 1.
(B) Delete it from the passage.
(C) Change "is" to "was".
(D) Change "lends" to "lent".
(E) Change "these" to "Archaeopteryx".

34. In context, which of the following would be the most effective revision of the underlined portion of sentence 14 (reproduced below) ?

In the years since that discovery, scientists have unearthed <u>other unique fossils</u>.

(A) many others
(B) many interesting fossils
(C) more of these kinds of fossils
(D) other fossils that confirm the link between dinosaurs and birds
(E) fossils that provide evidence disproving these early findings

35. Where in the passage would the following sentence best be inserted?

It was then that a worker in a German limestone quarry accidentally discovered an unusual fossil.

(A) Immediately before sentence 5
(B) Immediately before sentence 9
(C) Immediately before sentence 11
(D) Immediately before sentence 12
(E) Immediately before sentence 15

STOP

If you finish before time is called, you may check your work on this section only.
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SECTION 8

Time — 20 minutes
16 Questions

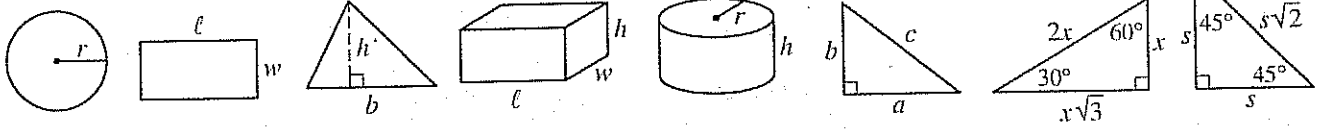
Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.

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. If $y = x + 50$, then $\frac{1}{10}(y - x) =$

(A) 5
(B) 25
(C) 50
(D) 250
(E) 500

2. If $8 + x$ is 4 more than 16, what is the value of $2x$?

(A) 12
(B) 14
(C) 24
(D) 40
(E) 56

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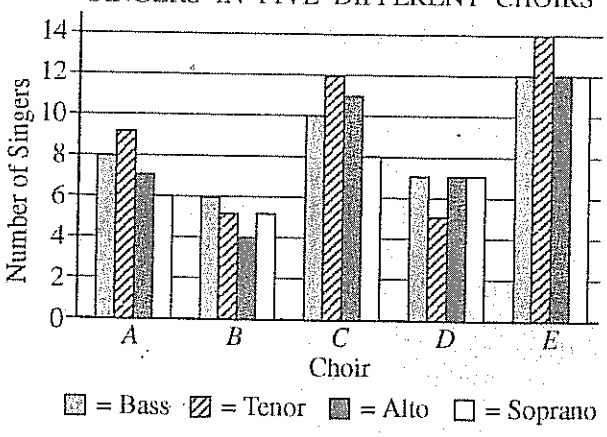
SINGERS IN FIVE DIFFERENT CHOIRS



3. The bar graph above shows the number of singers in each voice section of five choirs. If choir A were to be combined with choir C to form a single new choir, the new choir would have how many more tenors than choir E?

(A) Four
(B) Five
(C) Seven
(D) Eight
(E) Nine

4. If $x^{3y} = 27$, what does x^y equal?

(A) 3
(B) 6
(C) 9
(D) 12
(E) 81

5. If $k > 0$, which of the following CANNOT be equal to $\frac{8}{20k}$?

(A) 0
(B) 0.2
(C) 0.4
(D) 0.8
(E) 4

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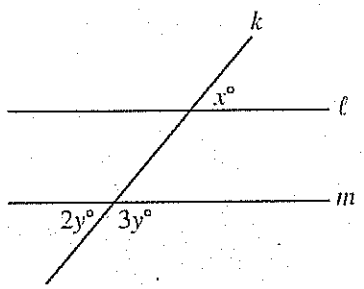

Note: Figure not drawn to scale.

6. In the figure above, lines ℓ and m are parallel. What is the value of x?

(A) 24
(B) 36
(C) 54
(D) 72
(E) 108

7. On a certain day, 85 men and 155 women each made purchases at a department store. If 40 percent of these people purchased clothing and if 42 of those who purchased clothing were men, how many women purchased clothing?

(A) 42
(B) 54
(C) 62
(D) 82
(E) 96

8. For which of the following sets does each ordered pair (x, y) in the set satisfy the inequality $|x| + |y| \leq 5$?

I. $\{(0, 0), (-2, 3), (0, 5), (0, -5)\}$
II. $\{(5, -1), (3, -2), (-1, 5), (-2, -2)\}$
III. $\{(-2, 3), (0, 0), (4, -1), (0, 6)\}$

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

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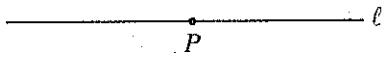
9. In a certain sequence, each term after the first term is 3 less than twice the previous term. The 5th term of the sequence is 17. What is the sum of the 4th and 6th terms?

(A) 35
(B) 38
(C) 41
(D) 44
(E) 47

10. At a department store, $\frac{3}{5}$ of the items are discounted by 50 percent, $\frac{1}{5}$ of the items are discounted by 70 percent, $\frac{1}{10}$ of the items are discounted by 80 percent, and all other items are not discounted. If one item is to be chosen at random, what is the probability that the item is discounted by either 50 percent or 70 percent?

(A) $\frac{1}{5}$
(B) $\frac{3}{10}$
(C) $\frac{3}{5}$
(D) $\frac{7}{10}$
(E) $\frac{4}{5}$



11. In the figure above, two points A and B (not labeled) are on line ℓ on opposite sides of P, and the length of $\overline{AP}$ is three times the length of $\overline{PB}$. What is the ratio of the length of $\overline{AB}$ to the length of $\overline{PB}$?

(A) 1 to 4
(B) 1 to 3
(C) 3 to 4
(D) 3 to 1
(E) 4 to 1

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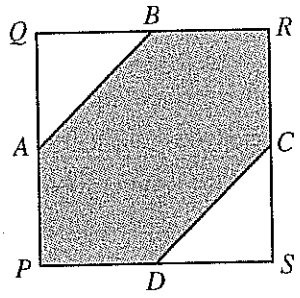

12. In square $PQRS$ above, points A, B, C, and D are midpoints of the sides. If the area of the square is z, what is the area of the shaded region in terms of z?

(A) $\frac{7}{8}z$

(B) $\frac{3}{4}z$

(C) $\frac{2}{3}z$

(D) $\frac{1}{2}z$

(E) $\frac{1}{4}z$

13. If x is an even integer, how many even integers are there between $x+3$ and $x+13$, inclusive?

(A) Four
(B) Five
(C) Six
(D) Seven
(E) Ten

14. Danielle earned 35 more credits at the state university than she did at the community college. Half the number of credits that she earned at the university is 3 times the number of credits she earned at the community college. How many credits did she earn altogether at both schools?

(A) 46
(B) 47
(C) 48
(D) 49
(E) 50

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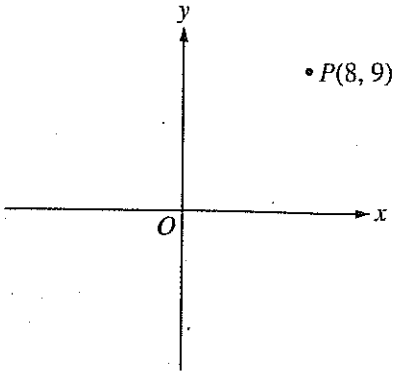

15. In the xy-coordinate system above, P is the center of a circle (not shown). If the radius of the circle is 10, in how many points does the circle intersect the coordinate axes?

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

b	$f(b)$
-3	6
-2	5
0	-3
1	0
4	-13

16. The table above defines the function f. If the function g is defined as $g(b) = f(b) + 2$, what is the value of a when $g(a) = 8$?

(A) -3
(B) -2
(C) 0
(D) 1
(E) 4

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.

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SECTION 9

Time — 20 minutes
19 Questions

Turn to Section 9 (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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Marie Curie is ------- among female Nobel Prize winners: she alone has been honored in two different fields.

   (A) unique (B) unsung (C) immune
   (D) resigned (E) helpless

2. John Updike's literary ------- was -------: it included novels, short stories, essays, poetry, criticism, children's books, and more.

   (A) output . . diverse
   (B) technique . . limited
   (C) analysis . . generic
   (D) achievement . . minimal
   (E) judgment . . commonplace

3. While most pets are relatively ------- in a veterinarian's office, occasionally vets have to treat more aggressive animal patients.

   (A) fastidious (B) defensive (C) surreptitious
   (D) docile (E) diminutive

4. Biodemographer S. Jay Olshansky regards commercial products that promise to stop aging as -------, arguing that while these nostrums might possibly ------- some of aging's superficial manifestations, they cannot touch the process at its core.

   (A) humbuggery . . elude
   (B) foreshadowing . . thwart
   (C) quackery . . forestall
   (D) sophistry . . enhance
   (E) balderdash . . mimic

5. Rosario ------- on the problem at length, but no amount of extended reflection could provide her with a satisfactory solution.

   (A) collaborated (B) extemporized
   (C) expounded (D) expostulated
   (E) ruminated

6. Because Russell was such a memorable and ------- public speaker, many people mistook his ability to talk about a wide range of topics for genuine -------.

   (A) enervating . . inquisitiveness
   (B) charismatic . . animosity
   (C) fluent . . evasiveness
   (D) daunting . . diffidence
   (E) adroit . . erudition

GO ON TO THE NEXT PAGE

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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.

The passage is adapted from a 2009 book about traffic.

When driving began, it was like a juggernaut, and we have rarely had time to pause and reflect upon the new kind of life that was being made. When the first electric car debuted in mid-nineteenth-century England, the speed limit was hastily set at four miles per hour: the speed at which a man carrying a red flag could run ahead of a car entering a town, an event that was still a quite rare occurrence. It was probably also the last time the automobile existed at anything like human speed or scale.

At first, cars simply joined the chaotic traffic already in the street, where the only real rule of the road in most North American cities was "keep to the right." In 1902, William Phelps Eno, who would become known as "the first traffic technician in the world," set about untangling the strangling miasma that was New York City's streets. Eno proposed a series of "radical ordinances" to rein in New York's traffic, a plan that seems hopelessly quaint now, with instructions such as the "right way to turn a corner." But Eno, who became a global celebrity of sorts, boating off to Paris and São Paulo to solve local traffic problems, was as much a social engineer as a traffic engineer, teaching vast numbers of people to act and communicate in new ways, often against their will.

In the beginning this language simply served to confuse. In one town, the blast of a policeman's whistle might mean stop, in another go. A red light indicated one thing here, another thing there. The first stop signs were yellow, even though many people thought they should be red. As one traffic engineer summed up early-twentieth-century traffic control, "There was a great wave of arrow lenses, purple lenses, lenses with crosses, etc., all giving special instructions to the motorist, who, as a rule, hadn't the faintest idea of what these special indications meant." The systems we take for granted today required years of evolution and were often steeped in controversy. Were red and green even the right colors for traffic lights? In 1923 it was pointed out that approximately one in ten people saw only gray when looking at a traffic signal, because of color blindness. Might not blue and yellow, which almost everyone could see, be better? Or would that create catastrophic confusion among those who had already learned red and green? Despite all the uncertainty, traffic engineering soon hoisted itself onto a wobbly pedestal of authority, even if, as the transportation historian Jeffrey Brown argues, engineers' neutral-sounding scientific ideology, which compared "curing" congestion to fighting disease, reflected the desires of a narrow band of urban elites (i.e., car owners). Thus it was quickly established that the prime objective of a street was simply to move as many cars as quickly as possible: an idea that obscured, as it does to this day, the many other roles of city streets.

After more than a century of tinkering with traffic, plus years of tradition and scientific research, one would think that all these issues would have been smoothed out. And they have been, largely. We drive in a landscape that looks virtually the same wherever we go: a red light in Morocco means the same thing as it does in Montana. We drive on highways that have been so perfectly engineered that we forget we are moving at high speeds. Indeed, we are sometimes barely aware of moving at all.

For all this standardized sameness, though, there is much that is still simply not known about how to manage the flows of all those people in traffic—drivers, walkers, cyclists, and others—in the safest and most efficient manner. For example, in some cities a countdown signal indicates, in seconds, exactly how much time you have before the "Walk" signal will change to "Don't Walk." Some people in the traffic world think this innovation has made things better for pedestrians, but it is just as easy to find others who think it offers no improvement at all. Some people think that marked bicycle lanes on streets are ideal for cyclists, while others prefer separated lanes; still others suggest that having no bicycle lanes at all would be best for bike riders.

Henry Barnes, the legendary traffic commissioner of New York City in the 1960s, reflecting on his long career in his charmingly titled memoir *The Man with the Red and Green Eyes*, observed that "traffic was as much an emotional problem as it was a physical and mechanical one." People, he concluded, were tougher to crack than cars.

7. The scenario in lines 3-7 ("When . . . occurrence") is best characterized as

(A) a landmark traffic decision
(B) an entertaining historical fact
(C) an annoying aristocratic custom
(D) an exceptionally dangerous behavior
(E) a potentially useful lesson

8. Lines 10-12 ("At . . . right'") indicate that traffic flow in North American cities before the invention of the automobile was

(A) well regarded
(B) enjoyable
(C) cautious
(D) disorderly
(E) violent

GO ON TO THE NEXT PAGE

9. The reference to "keep to the right" (line 12) serves primarily to

(A) commend the person who invented the rule
(B) emphasize the universal importance of rules
(C) indicate a rule that should have been nullified
(D) suggest that most subsequent rules have been arbitrary
(E) underscore the lack of agreed-upon traffic rules

10. Which of the following is most analogous to the description of William Phelps Eno in lines 19-21 ("But . . . problems") ?

(A) An international celebrity takes time to meet individually with several of her fans.
(B) A state recycling coordinator is asked by other states to run workshops on recycling.
(C) A business executive visits companies in other nations to learn new sales strategies.
(D) A successful government energy official decides to become a high school science teacher.
(E) An inexperienced new driver volunteers to serve on his town's traffic advisory committee.

11. The reference to the two types of engineers in lines 21-22 ("was . . . engineer") is used largely to support which of the following points?

(A) New York City's traffic problems were unique.
(B) Eno was a better teacher than he was an engineer.
(C) Engineering skills can be applied to many different fields.
(D) Changes in human behavior were needed as well as new traffic rules.
(E) People became confused by the abundance of new traffic regulations.

12. The discussion in lines 22-23 ("teaching . . . will") implies that automobile drivers in the early 1900s initially

(A) challenged the legality of the new rules
(B) objected to the rules favoring pedestrians
(C) resented the limitations imposed by the new rules
(D) struggled to understand the need for the single traffic rule
(E) felt suspicious of Eno's celebrity status

13. The examples in lines 25-33 ("In one . . . meant'") are used to support the point that

(A) standardization was needed
(B) color choices were limited
(C) words can be ambiguous
(D) simplicity was impossible
(E) more police officers were required

14. The questions in lines 35-42 ("Were red . . . green?") primarily serve to

(A) provide exceptions to generalizations
(B) highlight issues that required resolution
(C) challenge commonly held assumptions
(D) clarify the benefits of an important decision
(E) propose a distinction between similar views

15. Lines 42-44 ("traffic . . . authority") suggest that traffic engineers were able to

(A) make unimpeded progress
(B) achieve immediate consensus
(C) gain an appreciable amount of influence
(D) consult a diverse array of motorists
(E) seize power from wealthy urbanites

16. The references to "Morocco" (line 56) and "Montana" (line 57) serve to emphasize the

(A) variety of traffic issues worldwide
(B) importance of the color red in traffic lights
(C) necessity of adjusting speed limits on highways
(D) uniformity of most modern traffic signals
(E) complexity of constructing global highway systems

17. In lines 63-64, "walkers" and "cyclists" are mentioned as examples of people who

(A) enjoy physical exercise in outdoor locations
(B) move safely and efficiently on city streets
(C) prefer not to use public transportation
(D) share busy streets with motorists
(E) save gas by not using automobiles

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18. Which generalization about the use of "marked bicycle lanes" (line 71) is most directly supported by the passage?

(A) Bicycles and automobiles should be kept apart.
(B) Cyclists are treated like second-class citizens.
(C) The lanes interfere with the flow of traffic.
(D) This idea has proved to be a model of innovation.
(E) There is currently little consensus about this topic.

19. The passage is best described as

(A) a consideration of challenges in regulating traffic
(B) a criticism of the professional qualifications of traffic engineers
(C) an account of the impact of the invention of the automobile
(D) an argument for giving priority to pedestrian traffic
(E) an explanation of a puzzling event in automotive history

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.

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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 <u>and she was sixty-five years old then</u>.

(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

Ⓐ ● Ⓒ Ⓓ Ⓔ

1. <u>Just after returning home, the discovery was made</u> that the basement had flooded during our absence.

   (A) Just after returning home, the discovery was made
   (B) Just after returning home, we discovered
   (C) Having just returned home was when we discovered
   (D) We returned home, just thereafter we discovered
   (E) Our discovery, just after we returned home,

2. Unlike other members of the bear family, which rely at least in part on a diet of insects, fish, mammals, or other meat, <u>but pandas are</u> primarily vegetarians and eat mainly bamboo.

   (A) but pandas are
   (B) but a panda is
   (C) pandas are
   (D) pandas, which are
   (E) that of a panda is

3. Maya Lin is best known for designing the Vietnam Veterans Memorial, <u>but her work also including</u> buildings, furniture, and sculptures in stone, wood, and glass.

   (A) but her work also including
   (B) but her work also includes
   (C) but her work also having included
   (D) her work also includes
   (E) then her work also includes

4. The Mansion House, once home to a thriving utopian community, remained closed to the public for over a <u>century and reopening</u> as a museum in 1987.

   (A) century and reopening
   (B) century, it reopened
   (C) century but reopened
   (D) century, when reopening
   (E) century, so reopening

GO ON TO THE NEXT PAGE

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5. Voicing their concern about heavy traffic near the school, the town council's plan to build a bypass was supported by local parents.

   (A) the town council's plan to build a bypass was supported by local parents
   (B) local parents supported the town council's plan to build a bypass
   (C) a plan by the town council to build a bypass was supported by local parents
   (D) a bypass was planned by the town council and local parents supported building it
   (E) building a bypass was planned by the town council and supported by local parents

6. Diamond is harder than any other naturally occurring mineral, and the reason is because its carbon atoms are arranged in a strongly bonded crystal structure.

   (A) mineral, and the reason is because
   (B) mineral; the reason for it is that
   (C) mineral and because
   (D) mineral because
   (E) mineral by

7. Relatively little is known about the Suminoe oyster, which is new to the Chesapeake Bay, this has resulted in it being difficult for scientists to decide whether it may disturb the ecosystem there.

   (A) Bay, this has resulted in it being difficult
   (B) Bay, which have resulted in difficulty
   (C) Bay, and results in difficulty
   (D) Bay; they result in difficulty
   (E) Bay; as a result, it is difficult

8. The reason that many films succeed is that it reflects the private yearnings of audiences.

   (A) is that it reflects
   (B) is that they reflect
   (C) is because of reflecting
   (D) are because they reflect
   (E) are their reflection of

9. Dorothy Crowfoot Hodgkin used x-rays to discover the chemical structures of penicillin and vitamin B12, winning a Nobel Prize for her work.

   (A) winning a Nobel Prize for her work
   (B) she then won a Nobel Prize for her work
   (C) this work won her a Nobel Prize
   (D) she won a Nobel Prize for her work
   (E) her work having won a Nobel Prize for her

10. Although the development of an all-electric airplane is more problematic and complex than an all-electric car, several aeronautical companies are working to design and build all-electric airplanes.

    (A) an all-electric car
    (B) all-electric cars
    (C) those of an all-electric car
    (D) an all-electric car being developed
    (E) the development of an all-electric car

11. In appearance much like the traditional yellow-fleshed Peruvian potato, Canadian researchers developed the hybrid Yukon Gold potato about 30 years ago.

    (A) Canadian researchers developed the hybrid Yukon Gold potato
    (B) Canadian researchers have developed the hybrid Yukon Gold potato
    (C) the hybrid Yukon Gold potato was developed by Canadian researchers
    (D) however, the hybrid Yukon Gold potato was developed by Canadian researchers
    (E) but the hybrid Yukon Gold potato was developed by Canadian researchers

12. One of the few marine mammals that makes use of tools are the Indian Ocean bottlenose dolphin, which uses sea sponges to stir sand on the ocean floor while hunting for prey.

    (A) that makes use of tools are
    (B) that make use of tools are
    (C) to make use of tools is
    (D) to make use of tools are
    (E) to make use of tools,

GO ON TO THE NEXT PAGE

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13. The Institute's exhibition of pictures of Arctic animals <u>displays a firm commitment</u> and a deep interest in the conservation of the world's endangered animal species.

(A) displays a firm commitment
(B) display a firm commitment
(C) displays a firm commitment to
(D) display a firm commitment to
(E) that display a firm commitment

14. In addition to scientific talent, Santiago Ramón y Cajal had artistic talent, <u>as is evidenced by the excellent drawings</u> in his papers about the nervous system.

(A) as is evidenced by the excellent drawings
(B) which the excellent drawings are seen to be evidence of and appeared
(C) the excellent drawings which are evidence of this are
(D) his excellent drawings as evidence, appearing
(E) to be evidenced of in the excellent drawings

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 AEVZ, BWVZ

Critical Reading

Section 2

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

Number correct

Number incorrect

Section 4

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

Number correct

Number incorrect

Section 9

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

Number correct

Number incorrect

Mathematics

Section 3

Multiple-Choice Questions

	COR. ANS.	DIFF. LEV.
1.	D	1
2.	B	1
3.	A	2
4.	E	3
5.	B	3
6.	D	3
7.	A	3
8.	C	4

Student-Produced Response Questions

	COR. ANS.	DIFF. LEV.
9.	81	2
10.	7/4,1.75	2
11.	1700	2
12.	44	3
13.	31<=x<=41	3
14.	130	4
15.	150	3
16.	10	4
17.	8/3,2.66,2.67	4
18.	8	5

Number correct

Number correct (9-18)

Number incorrect

Section 5

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

Number correct

Number incorrect

Section 8

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

Number correct

Number incorrect

Writing Multiple-Choice

Section 7

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

Number correct

Number incorrect

Section 10

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

Number correct

Number incorrect

† Question dropped

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).

The Scoring Process

1. **Scanning.** Your answer sheet is scanned electronically, and the circle you filled in for each question is recorded in a computer file.

2. **Scoring.** The computer compares the circle filled in for each question with the correct response.

   - Each correct answer receives one point.
   - Omitted questions do not count toward your score.
   - One-fourth of a point is subtracted for each wrong answer to multiple-choice questions. No points are subtracted for wrong answers to the student-produced response mathematics questions.

     Example:

     The critical reading section, for example, has 67 questions. If you have 37 right, 28 wrong, and 2 omitted, the resulting raw score of 30 is determined as follows:

     $37 - 28\ (1/4) = 37 - 7 = 30$

   - If the raw score is a fractional number, it is rounded to the nearest whole number. For example, a raw score of 36.25 is rounded to 36, the nearest whole number. A raw score of 36.50 is rounded upward to 37.

3. **Essay scoring.** Using the scoring guide shown on page 51, specially trained high school and college teachers score the essay. Each essay is read independently by two readers who rate it on a scale of 1 to 6. (If the two scores differ by more than one point, a third reader scores the essay.) The two readers' scores are added together, and the essay subscore is reported on a scale of 2 to 12. The essay section is worth approximately 30 percent of the raw score, and the multiple-choice writing section counts for approximately 70 percent.

4. **Converting raw scores to scaled scores.** Raw scores are then placed on the scale of 200–800 through a process that adjusts scores to account for minor differences in difficulty among different editions of the test. This process, known as equating, is performed so that a student's reported score is not affected by the edition of the test taken or by the abilities of the group with whom the student takes the test. As a result of placing SAT scores on the College Board scale, scores earned by students at different times can be compared. For example, an SAT mathematics score of 400 on a test taken at one administration indicates the same level of developed mathematics ability as a 400 score obtained on a different edition of the test taken at another time.

SAT Essay Scoring Guide

SCORE OF 6

An essay in this category demonstrates *clear and consistent mastery,* although it may have a few minor errors. A typical essay

- effectively and insightfully develops a point of view on the issue and demonstrates outstanding critical thinking, using clearly appropriate examples, reasons, and other evidence to support its position
- is well organized and clearly focused, demonstrating clear coherence and smooth progression of ideas
- exhibits skillful use of language, using a varied, accurate, and apt vocabulary
- demonstrates meaningful variety in sentence structure
- is free of most errors in grammar, usage, and mechanics

SCORE OF 5

An essay in this category demonstrates *reasonably consistent mastery,* although it will have occasional errors or lapses in quality. A typical essay

- effectively develops a point of view on the issue and demonstrates strong critical thinking, generally using appropriate examples, reasons, and other evidence to support its position
- is well organized and focused, demonstrating coherence and progression of ideas
- exhibits facility in the use of language, using appropriate vocabulary
- demonstrates variety in sentence structure
- is generally free of most errors in grammar, usage, and mechanics

SCORE OF 4

An essay in this category demonstrates *adequate mastery,* although it will have lapses in quality. A typical essay

- develops a point of view on the issue and demonstrates competent critical thinking, using adequate examples, reasons, and other evidence to support its position
- is generally organized and focused, demonstrating some coherence and progression of ideas
- exhibits adequate but inconsistent facility in the use of language, using generally appropriate vocabulary
- demonstrates some variety in sentence structure
- has some errors in grammar, usage, and mechanics

SCORE OF 3

An essay in this category demonstrates *developing mastery,* and is marked by ONE OR MORE of the following weaknesses:

- develops a point of view on the issue, demonstrating some critical thinking, but may do so inconsistently or use inadequate examples, reasons, or other evidence to support its position
- is limited in its organization or focus, or may demonstrate some lapses in coherence or progression of ideas
- displays developing facility in the use of language, but sometimes uses weak vocabulary or inappropriate word choice
- lacks variety or demonstrates problems in sentence structure
- contains an accumulation of errors in grammar, usage, and mechanics

SCORE OF 2

An essay in this category demonstrates *little mastery,* and is flawed by ONE OR MORE of the following weaknesses:

- develops a point of view on the issue that is vague or seriously limited, and demonstrates weak critical thinking, providing inappropriate or insufficient examples, reasons, or other evidence to support its position
- is poorly organized and/or focused, or demonstrates serious problems with coherence or progression of ideas
- displays very little facility in the use of language, using very limited vocabulary or incorrect word choice
- demonstrates frequent problems in sentence structure
- contains errors in grammar, usage, and mechanics so serious that meaning is somewhat obscured

SCORE OF 1

An essay in this category demonstrates *very little* or *no mastery,* and is severely flawed by ONE OR MORE of the following weaknesses:

- develops no viable point of view on the issue, or provides little or no evidence to support its position
- is disorganized or unfocused, resulting in a disjointed or incoherent essay
- displays fundamental errors in vocabulary
- demonstrates severe flaws in sentence structure
- contains pervasive errors in grammar, usage, or mechanics that persistently interfere with meaning

Essays not written on the essay assignment will receive a score of zero.

Scoring Worksheet for Form Codes AEVZ, BWVZ

From your responses on your QAS report, fill in the blanks below and do the calculations to get your critical reading, mathematics and writing raw scores. Use the tables on the following pages to find your scaled scores.

Get Your Critical Reading Score

How many critical reading questions did you get **right**?

Section 2: Questions 1–24 _____

Section 4: Questions 1–23 +_____

Section 9: Questions 1–19 +_____

Total = _____(A)

How many critical reading questions did you get **wrong**?

Section 2: Questions 1–24 _____

Section 4: Questions 1–23 +_____

Section 9: Questions 1–19 +_____

Total = _____

× 0.25 = _____(B)

A – B = _____
Critical Reading Raw Score

Round the critical reading raw score to the nearest whole number.

_____

Use the table on page 53 to find your critical reading scaled score.

_____

Get Your Mathematics Score

How many mathematics questions did you get **right**?

Section 3: Questions 1–18 _____

Section 5: Questions 1–20 +_____

Section 8: Questions 1–16 +_____

Total = _____(A)

How many **multiple-choice** mathematics questions did you get **wrong**?

Section 3: Questions 1–8 _____

Section 5: Questions 1–20 +_____

Section 8: Questions 1–16 +_____

Total = _____

× 0.25 = _____(B)

A – B = _____
Mathematics Raw Score

Round the mathematics raw score to the nearest whole number.

_____

Use the table on page 53 to find your mathematics scaled score.

_____

Get Your Writing Score

How many multiple-choice writing questions did you get **right**?

Section 7: Questions 1–35 _____

Section 10: Questions 1–14 +_____

Total = _____(A)

How many multiple-choice writing questions did you get **wrong**?

Section 7: Questions 1–35 _____

Section 10: Questions 1–14 +_____

Total = _____

× 0.25 = _____(B)

A – B = _____
Writing Multiple-Choice Raw Score

Round the writing multiple-choice raw score to the nearest whole number.

_____(C)

Use the table on page 53 to find your writing multiple-choice scaled score.

_____

Copy your essay score from your QAS report.

_____(D)

Use the appropriate writing composite table (pages 54–55) for your form code and look up your writing multiple-choice raw score (C) and your essay score (D) to find your writing composite scaled score.

_____

SAT Score Conversion Table
Form Codes AEVZ, BWVZ

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
66	800			31	490	540	54
65	800			30	480	530	53
64	800			29	480	520	52
63	780			28	470	510	51
62	760			27	470	510	50
61	750			26	460	500	49
60	730			25	450	490	48
59	720			24	450	480	47
58	700			23	440	470	46
57	690			22	430	460	45
56	680			21	430	460	44
55	670			20	420	450	44
54	660	800		19	410	440	43
53	650	760		18	410	430	42
52	640	740		17	400	420	41
51	630	720		16	390	410	40
50	620	710		15	390	400	39
49	610	700	80	14	380	390	38
48	610	690	78	13	370	380	37
47	600	680	75	12	370	370	36
46	590	670	72	11	360	360	35
45	580	660	70	10	350	350	35
44	580	650	69	9	340	340	34
43	570	640	67	8	330	330	33
42	560	640	66	7	320	320	31
41	560	630	64	6	310	310	30
40	550	620	63	5	300	300	29
39	540	610	62	4	290	280	28
38	540	600	61	3	280	270	26
37	530	590	60	2	260	250	24
36	520	580	59	1	250	240	22
35	520	570	58	0	230	220	20
34	510	570	57	-1	210	200	20
33	500	560	56	-2	200	200	20
32	500	550	55	and below			

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

SAT Writing Composite Score Conversion Table
Form Code AEVZ

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

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