

Form Codes AEOZ, BWOZ

# **SAT Reasoning Test**<sup>TM</sup>

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Question-and-Answer Service  
March 2005 Administration  
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## **INSIDE:**

- The test questions that counted toward the critical reading, math, and writing scores on the SAT Reasoning Test
- Your essay prompt and all other essay topics administered on test day
- The correct answers
- The difficulty level of each question
- The instructions for scoring your own test

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 **CollegeBoard SAT**  
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# ESSAY

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# ESSAY



## 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.

You have twenty-five minutes to write an essay on the topic assigned below. **DO NOT WRITE ON ANOTHER TOPIC. AN OFF-TOPIC ESSAY WILL RECEIVE A SCORE OF ZERO.**

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

We must seriously question the idea of majority rule. The majority grinned and jeered when Columbus said the world was round. The majority threw him into a dungeon for his discoveries. Where is the logic in the notion that the opinion held by a majority of people should have the power to influence our decisions?

Adapted from James A. Reed, "Majority Rule"

**Assignment:** Is the opinion of the majority—in government or in any other circumstances—a poor guide? 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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Think carefully about the issue presented in the following excerpt and the assignment below.

Given the importance of human creativity, one would think it should have a high priority among our concerns. But if we look at the reality, we see a different picture. Basic scientific research is minimized in favor of immediate practical applications. The arts are increasingly seen as dispensable luxuries. Yet as competition heats up around the globe, exactly the opposite strategy is needed.

Adapted from Mihaly Csikszentmihalyi, *Creativity: Flow and the Psychology of Discovery and Invention*

**Assignment:** Is creativity needed more than ever in the world today? 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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Think carefully about the issue presented in the following excerpt and the assignment below.

Even scientists know that absolute objectivity has yet to be attained. It's the same for absolute truth. But, as many news reporters have observed, the idea of objectivity as a guiding principle is too valuable to be abandoned. Without it, the pursuit of knowledge is hopelessly lost.

Adapted from "Focusing Our Values," *Nieman Reports*

**Assignment:** Are people better at making observations, discoveries, and decisions if they remain neutral and impartial? 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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The supervisor will tell you how much time you have to write an essay on the topic assigned below. **DO NOT WRITE ON ANOTHER TOPIC. AN OFF-TOPIC ESSAY WILL RECEIVE A SCORE OF ZERO.**

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

If you think that what you do is your own business, you are wrong. In this world your conduct affects not only you but the conduct of other people as well. If you behave in a way that is considered unacceptable and other people copy your behavior, you are responsible for the consequences.

Adapted from Margaret Banning, "Letter to Susan"

**Assignment:** Is a person responsible, through the example he or she sets, for the behavior of other people? 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.



## SECTION 2

Time — 25 minutes

25 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 each sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

## Example:

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

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

(A) (B) (C) (D) ●

Common garlic has ----- properties; during the First World War British medics saved thousands of lives by wrapping wounds with garlic-soaked bandages.

- (A) curative (B) flavoring (C) inferior  
(D) questionable (E) infamous

In her poems, Alice Walker retrieves and ----- parts of Black culture that some have been all too quick to ----- the past as fossilized artifacts.

- (A) revitalizes . . . consign to  
(B) conjoins . . . exclude from  
(C) realigns . . . salvage from  
(D) diffuses . . . defer to  
(E) refracts . . . impose on

The modest acceptance speech of the Academy Award-winning actress revealed a ----- that contrasted with her uninhibited screen performances.

- (A) theatricality (B) sullenness  
(C) flamboyance (D) reserve  
(E) nonchalance

4. Because howler monkeys rarely come out of the trees in their arboreal habitat, the continued well-being of the rain forest is ----- to their survival.

(A) inadequate (B) tangential  
(C) indispensable (D) baneful  
(E) expeditious

5. Doug was both ----- and -----: he possessed penetrating acuity and discernment and was also extremely humble.

(A) diligent . . . supercilious  
(B) perspicacious . . . unpretentious  
(C) obtuse . . . penitent  
(D) sagacious . . . imposing  
(E) apologetic . . . unassuming

6. The *Mona Lisa*, shipped in a private cabin and received by important dignitaries, was treated more like ----- than a painting upon its arrival in the United States.

(A) a perfectionist (B) a maverick (C) a potentate  
(D) an ascetic (E) an interloper

7. Despite its patent -----, this belief has become so ----- that no amount of rational argument will suffice to eradicate it.

(A) validity . . . inconsequential  
(B) implausibility . . . entrenched  
(C) credibility . . . prevalent  
(D) absurdity . . . outmoded  
(E) novelty . . . infrequent

8. The charlatan's seemingly frank and open demeanor was actually a ----- means of enlisting his patient's confidence.

(A) disingenuous (B) debilitating  
(C) diminutive (D) cathartic  
(E) prosaic

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 9-13 are based on the following passages.

### Passage 1

It is striking how our culture has wholeheartedly adopted the recycling ethic. Most parents have probably received humbling lectures from their children after tossing a glass jar or newspaper in the trash can. But the popularity of recycling is even more surprising considering the inconveniences associated with it. Who hasn't experienced the annoyance of trying to satisfy complicated rules about what can and cannot be recycled? Glass jars—but not their tops? Plastics number 1 and 2—but not number 3? Still there is no sign that the public is becoming impatient, so convinced are people of the virtues of recycling.

### Passage 2

Mandatory recycling programs aren't good for posterity. They offer mainly short-term benefits to a few groups—like politicians and waste-handling corporations—while diverting money from genuine social and environmental problems. Recycling programs actually consume resources. They require extra administrators and a continual public relations campaign explaining what to do with dozens of different products—recycle milk jugs but not milk cartons, index cards but not construction paper. Collecting a ton of recyclable items is three times more expensive than collecting a ton of garbage because crews pick up less material at each stop. Recycling may be the most wasteful activity in the modern United States: a waste of time and money, a waste of human and natural resources.

9. Which statement best characterizes the relationship between Passage 1 and Passage 2?
- (A) Passage 1 presents ethical objections to an action that Passage 2 also censures.
- (B) Passage 1 mocks a group of people that Passage 2 praises.
- (C) Passage 1 describes a cultural phenomenon that Passage 2 criticizes.
- (D) Passage 1 discusses the historical foundations of recycling, whereas Passage 2 considers the future of recycling.
- (E) Passage 1 describes people's fascination with recycling, whereas Passage 2 explains the process of sorting recyclables.

10. Unlike Passage 1, Passage 2 focuses primarily on recycling's

(A) philosophical foundations  
 (B) economic impact  
 (C) popular appeal  
 (D) moral implications  
 (E) environmental benefits

11. The author of Passage 2 would most likely characterize the "people" mentioned in line 11 as

(A) emotional  
 (B) indecisive  
 (C) unmotivated  
 (D) undemanding  
 (E) uninformed

12. The authors of both passages would most likely agree that recycling rules are

(A) convoluted  
 (B) commendable  
 (C) unethical  
 (D) antiquated  
 (E) unenforceable

13. Compared to the tone of Passage 2, the tone of Passage 1 is more

(A) pessimistic  
 (B) arrogant  
 (C) critical  
 (D) scholarly  
 (E) tempered



Questions 14-25 are based on the following passage.

*This passage is taken from a novel set in early twentieth-century England. Mrs. Deverell is the widow of a shopkeeper who lived and worked in Volunteer Street; their daughter Angel has become a best-selling novelist. Here, Mrs. Deverell finds herself in a new home that she and Angel share in the prosperous village of Alderhurst.*

"I never thought I would live in such a beautiful place," Mrs. Deverell told Angel when they first moved in. But nowadays she often suffered from the lowering pain of believing herself happy when she was not. "Who could be miserable in such a place?" she asked. Yet, on misty October evenings or on Sundays, when the church bells began, sensations she had never known before came over her.

She sometimes felt better when she went back to see her friends on Volunteer Street; but it was a long way to go. Angel discouraged the visits, and her friends seemed to have changed. Either they put out their best china and thought twice before they said anything, or they were defiantly informal—"You'll have to take us as you find us"—and would persist in making remarks like "Pardon the apron, but there's no servants here to polish the grate." In each case, they were watching her for signs of grandeur or condescension. She fell into little traps they laid and then they were able to report to the neighbors. "It hasn't taken her long to start putting on airs." She had to be especially careful to recognize everyone she met, and walked up the street with an expression of anxiety which was misinterpreted as disdain.

The name "Deverell Family Grocer" stayed for a long time over the shop, and she was pleased that it should, although Angel frowned with annoyance when she heard of it. Then one day the faded name was scraped and burnt away, and on her next visit to Volunteer Street, she saw that "Cabbage's Stores" was painted there instead. She felt an unaccountable panic and dismay at the sight of this and at the strange idea of other people and furniture in those familiar rooms. "Very nice folk," she was told. "She's so friendly. Always the same. And such lovely kiddies." Mrs. Deverell felt slighted and wounded; going home she was so preoccupied that she passed the wife of the landlord of The Volunteer without seeing her. "I wouldn't expect Alderhurst people to speak to a barkeep's wife," the woman told everyone in the saloon bar. "Even though it was our Gran who laid her husband out when he died." All of their kindnesses were remembered and brooded over; any past kindness Mrs. Deverell had done—and they were many—only served to underline the change which had come over her.

At a time of her life when she needed the security of familiar things, these were put beyond her reach. It seemed to her that she had wasted her years acquiring skills which at the end were to be of no use to her: her weather-eye for

a good drying day; her careful ear for judging the gentle singing sound of meat roasting in the oven; her touch for the freshness of meat; and how, by smelling a cake, she could tell if it were baked. These arts, which had taken so long to perfect, fell now into disuse. She would never again, she grieved, gather up a great fragrant line of washing in her arms to carry indoors. One day when they had first come to the new house, she had passed through the courtyard where sheets were hanging out: she had taken them in her hands and, finding them just at the right stage of drying, had begun to unpeg them. They were looped all about her shoulders when Angel caught her. "Please leave work to the people who should do it," she had said. "You will only give offense." She tried hard not to give offense; but it was difficult. The smell of ironing being done or the sound of eggs being whisked set up a restlessness which she could scarcely control.

The relationship of mother and daughter seemed to have been reversed, and Angel, now in her early twenties, was the authoritative one; since girlhood she had been taking on one responsibility after another, until she had left her mother with nothing to perplex her but how to while away the hours when the servants were busy and her daughter was at work. Fretfully, she would wander around the house, bored, but afraid to interrupt; she was like an intimidated child.

14. Which interpretation of Mrs. Deverell's statement in line 1 ("I never . . . place") is most fully supported by the rest of the passage?

- (A) It reveals an unsatisfied longing for beauty and comfort.
- (B) It suggests that Mrs. Deverell is unprepared for her new life.
- (C) It illustrates Mrs. Deverell's desire to impress her old friends.
- (D) It hints at Mrs. Deverell's increasing discomfort with her daughter's career.
- (E) It indicates Mrs. Deverell's inability to be happy in any environment.

15. The "sensations" (line 7) might best be described as feelings of

- (A) anger and bitterness
- (B) reverence and gratitude
- (C) dejection and isolation
- (D) nostalgia and serenity
- (E) empathy and concern





16. The primary purpose of the second paragraph (lines 9-23) is to show Mrs. Deverell's
- (A) surprise that her friends have not forgotten her
  - (B) nostalgia for her old neighborhood
  - (C) feelings of superiority toward her friends
  - (D) embarrassment about her former neighborhood
  - (E) changing relationship with her friends
17. The author most likely quotes Mrs. Deverell's friends in lines 14-16 in order to
- (A) voice a concern
  - (B) dismiss a belief
  - (C) illustrate an attitude
  - (D) cite an authority
  - (E) mock an undertaking
18. The speaker of the sentence quoted in lines 15-16 ("Pardon . . . grate") most likely intends to
- (A) account for a peculiar style of dress
  - (B) bemoan the lack of adequate help around the house
  - (C) frankly apologize for the messiness of the family's home
  - (D) indirectly express resentment about a difference in social status
  - (E) overtly call attention to Mrs. Deverell's arrogant behavior
19. Mrs. Deverell's reaction to the remarks quoted in lines 32-33 suggests that she thinks that these remarks
- (A) contain an implicit criticism
  - (B) mischaracterize the new family
  - (C) are a poor attempt at humor
  - (D) stem from an old grudge
  - (E) insult the memory of her husband
20. Lines 40-43 ("All of . . . her") suggest which of the following about the customers in the saloon bar?
- (A) They do not recall those occasions when Mrs. Deverell was kind to them.
  - (B) They feel that Mrs. Deverell is still essentially the same person that she has always been.
  - (C) They are not especially well acquainted with Mrs. Deverell.
  - (D) They are more generous toward themselves than they are toward Mrs. Deverell.
  - (E) They do not generally share the opinions of the barkeeper's wife.
21. Lines 45-52 ("It . . . disuse") suggest which of the following about the way that Mrs. Deverell had viewed the task of running a household?
- (A) She had believed some elements of it were beneath her.
  - (B) She had understood the importance of its sensory aspects.
  - (C) She had developed a regimented system.
  - (D) She had been afraid to ask Angel for her help.
  - (E) She had relied on household help to perform certain chores.
22. The use of "arts" in line 51 most directly emphasizes the
- (A) pride Mrs. Deverell's family took in her housekeeping skills
  - (B) expertise Mrs. Deverell brought to her household tasks
  - (C) importance of maintaining an orderly home
  - (D) rewards of preparing elaborate meals
  - (E) pleasure Mrs. Deverell found in teaching young servants



23. Angel's comments in lines 60-61 ("Please . . . offense") imply that

- (A) Mrs. Deverell has inadequate housekeeping experience
- (B) many people enjoy the opportunity to perform household tasks
- (C) Mrs. Deverell often hurts the feelings of others
- (D) domestic tasks are unsuitable for Mrs. Deverell's new social status
- (E) Mrs. Deverell is not a particularly efficient worker

24. In line 69, "perplex" most nearly means

- (A) trouble
- (B) bewilder
- (C) astonish
- (D) entangle
- (E) embarrass

25. In line 73, the author compares Mrs. Deverell to an "intimidated child" primarily in order to

- (A) criticize Mrs. Deverell for her naive view of the world
- (B) show that Mrs. Deverell continues to be diminished in her new home
- (C) imply that Mrs. Deverell cannot live up to her responsibilities
- (D) indicate the simplicity of Mrs. Deverell's new life
- (E) justify Angel's dismissal of her mother's feelings

**NOTE:** The reading passages in this test are brief excerpts or adaptations of excerpts from published material. The ideas contained in them do not necessarily represent the opinions of the College Board or Educational Testing Service. To make the test suitable for testing purposes, we may in some cases have altered the style, contents, or point of view of the original.

**S T O P**

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 3**  
**Time — 25 minutes**  
**18 Questions**

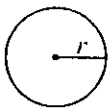
**Turn to Section 3 (page 4) of your answer sheet to answer the questions in this section.**

**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 scratchwork.

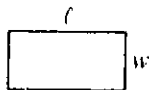
Notes

- The use of a calculator is permitted.
- All numbers used are real numbers.
- 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.
- 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.

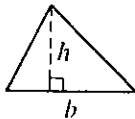
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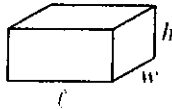
$A = \pi r^2$   
 $C = 2\pi r$



$A = lw$



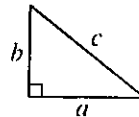
$A = \frac{1}{2}bh$



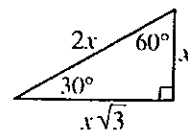
$V = lwh$



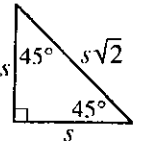
$V = \pi r^2 h$



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



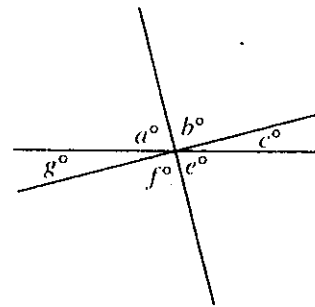
Special Right Triangles



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  $4(t + u) + 3 = 19$ , then  $t + u =$

- (A) 3
- (B) 4
- (C) 5
- (D) 6
- (E) 7



Note: Figure not drawn to scale.

2. In the figure above, three lines intersect at a point. If  $f = 85$  and  $c = 25$ , what is the value of  $a$ ?

- (A) 60
- (B) 65
- (C) 70
- (D) 75
- (E) 85

**GO ON TO THE NEXT PAGE**

3. If Marisa drove  $n$  miles in  $t$  hours, which of the following represents her average speed, in miles per hour?

- (A)  $\frac{n}{t}$
- (B)  $\frac{t}{n}$
- (C)  $\frac{1}{nt}$
- (D)  $nt$
- (E)  $n^2t$

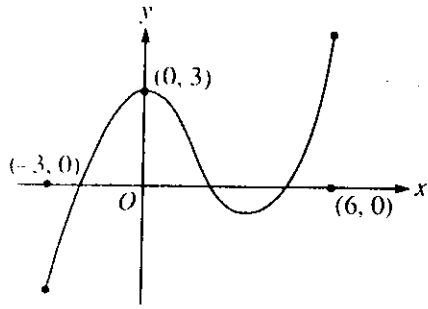
4. If  $a$  is an odd integer and  $b$  is an even integer, which of the following is an odd integer?

- (A)  $3b$
- (B)  $a + 3$
- (C)  $2(a + b)$
- (D)  $a + 2b$
- (E)  $2a + b$

5. In the coordinate plane, the points  $F(-2, 1)$ ,  $G(1, 4)$ , and  $H(4, 1)$  lie on a circle with center  $P$ . What are the coordinates of point  $P$ ?

- (A)  $(0, 0)$
- (B)  $(1, 1)$
- (C)  $(1, 2)$
- (D)  $(1, -2)$
- (E)  $(2.5, 2.5)$

GO ON TO THE NEXT PAGE 



6. The graph of  $y = f(x)$  is shown above. If  $-3 \leq x \leq 6$ , for how many values of  $x$  does  $f(x) = 2$ ?
- (A) None
  - (B) One
  - (C) Two
  - (D) Three
  - (E) More than three

8. For all numbers  $x$  and  $y$ , let  $x \Delta y$  be defined as  $x \Delta y = x^2 + xy + y^2$ . What is the value of  $(3 \Delta 1) \Delta 1$ ?
- (A) 5
  - (B) 13
  - (C) 27
  - (D) 170
  - (E) 183

7. If the average (arithmetic mean) of  $t$  and  $t + 2$  is  $x$  and if the average of  $t$  and  $t - 2$  is  $y$ , what is the average of  $x$  and  $y$ ?
- (A) 1
  - (B)  $\frac{t}{2}$
  - (C)  $t$
  - (D)  $t + \frac{1}{2}$
  - (E)  $2t$

GO ON TO THE NEXT PAGE

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

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

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

Write answer in boxes.

|   |                                  |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|   | 7                                | /                                | 1                                | 2                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                | 4                                |
| 5 | 5                                | 5                                | 5                                | 5                                |
| 6 | 6                                | 6                                | 6                                | 6                                |
| 7 | 7                                | 7                                | 7                                | 7                                |
| 8 | 8                                | 8                                | 8                                | 8                                |
| 9 | 9                                | 9                                | 9                                | 9                                |

Grid in result.

Fraction line

Answer: 2.5

|   |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|
|   | 2                                | .                                | 5                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                |
| 5 | 5                                | 5                                | 5                                |
| 6 | 6                                | 6                                | 6                                |
| 7 | 7                                | 7                                | 7                                |
| 8 | 8                                | 8                                | 8                                |
| 9 | 9                                | 9                                | 9                                |

Decimal point

Answer: 201

Either position is correct.

|   |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|
|   | 2                                | 0                                | 1                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                |

|   |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|
|   | 2                                | 0                                | 1                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                |

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

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

3.5 or  $7/2$ . (If  $\begin{array}{|c|c|c|c|} \hline 3 & 1 & / & 2 \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$  is gridded, it will be interpreted as  $\frac{31}{2}$ , not  $3\frac{1}{2}$ .)

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

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

|   |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|
|   | 2                                | /                                | 3                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                |
| 5 | 5                                | 5                                | 5                                |
| 6 | 6                                | 6                                | 6                                |

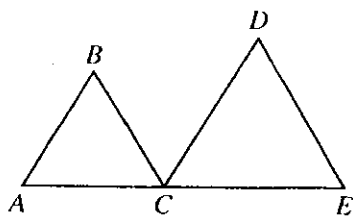
|   |                                  |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|   | .                                | 6                                | 6                                | 6                                |
|   | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
|   | 0                                | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                | 4                                |
| 5 | 5                                | 5                                | 5                                | 5                                |
| 6 | 6                                | 6                                | 6                                | 6                                |

|   |                                  |                                  |                                  |                                  |
|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
|   | .                                | 6                                | 6                                | 7                                |
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|   | 0                                | 0                                | 0                                | 0                                |
|   | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| 1 | 1                                | 1                                | 1                                | 1                                |
| 2 | 2                                | 2                                | 2                                | 2                                |
| 3 | 3                                | 3                                | 3                                | 3                                |
| 4 | 4                                | 4                                | 4                                | 4                                |
| 5 | 5                                | 5                                | 5                                | 5                                |
| 6 | 6                                | 6                                | 6                                | 6                                |

9. Morgan's plant grew from 42 centimeters to 57 centimeters in a year. Linda's plant, which was 59 centimeters at the beginning of the year, grew twice as many centimeters as Morgan's plant did during the same year. How tall, in centimeters, was Linda's plant at the end of the year?

10. Since the beginning of 1990, the number of squirrels in a certain wooded area has tripled during every 3-year period of time. If there were 5,400 squirrels in the wooded area at the beginning of 1999, how many squirrels were in the wooded area at the beginning of 1990?

GO ON TO THE NEXT PAGE



11. In the figure above, triangles  $ABC$  and  $CDE$  are equilateral and line segment  $\overline{AE}$  has length 25. What is the sum of the perimeters of the two triangles?

12. Marbles are to be removed from a jar that contains 12 red marbles and 12 black marbles. What is the least number of marbles that could be removed so that the ratio of red marbles to black marbles left in the jar will be 4 to 3?

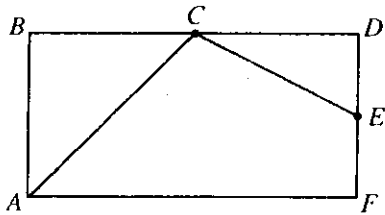
$$\begin{aligned}x &= 3v \\v &= 4t \\x &= pt\end{aligned}$$

13. For the system of equations above, if  $x \neq 0$ , what is the value of  $p$ ?

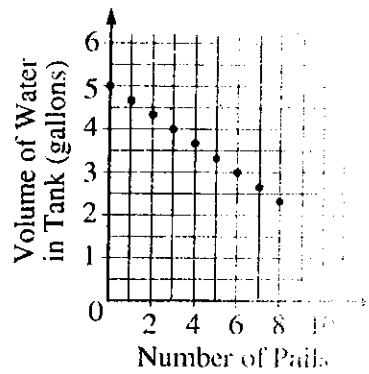
14. If  $|-2x + 1| < 1$ , what is one possible value of  $x$ ?

GO ON TO THE NEXT PAGE 

15. For what positive number is the square root of the number the same as the number divided by 40?



16. In rectangle  $ABDF$  above,  $C$  and  $E$  are midpoints of sides  $\overline{BD}$  and  $\overline{DF}$ , respectively. What fraction of the area of the rectangle is shaded?



17. The graph above shows the amount of water remaining in a tank each time a pail was used to remove  $x$  gallons of water. If 5 gallons were in the tank originally and  $2\frac{1}{3}$  gallons remained after the last pail containing  $x$  gallons was removed, what is the value of  $x$ ?

18. If  $0 \leq x \leq y$  and  $(x + y)^2 - (x - y)^2 = 24$ , what is the least possible value of  $y$ ?

**STOP**

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



**SECTION 4**  
 Time — 25 minutes  
 35 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.

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

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

EXAMPLE:

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

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

A  B  C  D  E

1. The poet Claude McKay was a native of Jamaica who spent most of his life in the United States but writing some of his poems in the Jamaican dialect.
- (A) The poet Claude McKay was a native of Jamaica who spent most of his life in the United States but writing
  - (B) Being that he was a Jamaican who spent most of his life in the United States, the poet Claude McKay writing
  - (C) Although a native of Jamaica, the poet Claude McKay spent most of his life in the United States, he wrote
  - (D) Although the poet Claude McKay spent most of his life in the United States, he was a native of Jamaica and wrote
  - (E) Because he was a native of Jamaica who spent most of his life in the United States, the poet Claude McKay writing

2. Many ancient Eastern rulers favored drinking vessels made of celadon porcelain because of supposedly revealing the presence of poison by cracking.

- (A) because of supposedly revealing the presence of poison
- (B) for being supposed that it would reveal the presence of poison
- (C) because of being supposed to reveal poison in it
- (D) for it was supposed to reveal that there is poison
- (E) because it was supposed to reveal the presence of poison

3. John believes that plants respond to human attention, which causes his talking to his African violets every night.

- (A) attention, which causes his talking
- (B) attention and talking is what is done
- (C) attention and his talks
- (D) attention; for this reason has been his talking
- (E) attention; he therefore talks

4. All the demands on soprano Kathleen Battle for operatic performances, solo concerts, and special guest appearances, tempting her to sing too often and straining her voice.

- (A) appearances, tempting her to sing too often and straining
- (B) appearances not only tempt her to sing too often plus they strain
- (C) appearances tempts her not only into singing too often but then she strains
- (D) appearances, tempting her into singing too often and she therefore strains
- (E) appearances tempt her to sing too often and strain



5. One reason that an insect can walk on walls while a human cannot is that the mass of its tiny body is far lower than humans.
- (A) far lower than humans  
(B) far lower than that of a human's body  
(C) lower by far than humans  
(D) far lower than a human  
(E) far lower than is a human's body
6. In the 1980's, the median price of a house more than doubled, generally outdistancing the rate of inflation.
- (A) generally outdistancing the rate of inflation  
(B) generally this outdistanced the rate of inflation  
(C) and the result was the general outdistancing of inflation  
(D) the general rate of inflation was thus outdistanced  
(E) thus generally inflation had been outdistanced
7. In the nineteenth century, reproductions of cathedrals or castles made entirely of ice was often a popular feature in North American winter carnivals.
- (A) was often a popular feature  
(B) often were popular features  
(C) often was featured popularly  
(D) often being popular features  
(E) have been featured popularly
8. A fine orchestral performance will exhibit the skills of the musicians, their abilities to work as an ensemble, and how he or she responds to the conductor.
- (A) how he or she responds  
(B) how to respond  
(C) their responding  
(D) their responses  
(E) they respond
9. The African tsetse fly does not need a brain, everything it has to do in life is programmed into its nervous system.
- (A) brain, everything  
(B) brain due to everything which  
(C) brain, for everything  
(D) brain; since, everything  
(E) brain whereas everything
10. She was concerned about how Hank would react to the incident, but in searching his face, he did not seem to be at all embarrassed or troubled.
- (A) in searching his face, he did not seem to be  
(B) by searching his face, it showed that he was not  
(C) a search of his face showed that he seemed not  
(D) searching his face, he did not seem to be  
(E) his face being searched showed that he was not
11. Explaining modern art is impossible, partly because of its complexity but largely because of it rapidly changing.
- (A) of it rapidly changing  
(B) it makes rapid changes  
(C) of the rapidity with which it changes  
(D) changing it is rapid  
(E) it changes so rapid



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

## EXAMPLE:

The other delegates and him immediately

A B C

accepted the resolution drafted by the

D

neutral states. No error

E

(A) ● (C) (D) (E)

12. The ambassador was entertained lavish by  
A  
Hartwright, whose company has a monetary  
B C  
interest in the industrial development of the  
D  
new country. No error  
E
13. Among the discoveries made possible by  
A B  
the invention of the telescope they found that  
C D  
dark spots existed on the Sun in varying numbers.  
No error  
E
14. This liberal arts college has decided requiring  
A B  
all students to study at least one non-European  
C D  
language. No error  
E
15. Twenty-five years after Alex Haley's *Roots* stimulate  
A B  
many people to research their family histories, new  
C  
technology has been developed to make the task  
easier. No error  
D E
16. For months the press had praised Thatcher's handling  
of the international crisis, and editorial views changed  
A  
quickly when the domestic economy worsened.  
B C D  
No error  
E
17. Experiments have shown that human skin provides  
A B  
natural protection against a surprising large  
C  
number of infectious bacteria. No error  
D E
18. In the aggressive society created by William Golding  
A  
in *Lord of the Flies*, both Ralph and Jack emerge  
early on as the leader of the lost boys. No error  
B C D E
19. More than forty years have passed since a quarter  
A B  
of a million people marched on Washington, D.C.,  
in an attempt to secure civil rights for Black  
C D  
Americans. No error  
E



24. Careful analysis of pictures of the Moon reveal that  
 parts of the Moon's surface are markedly similar to  
 parts of the Earth's . No error

A  
B C  
D E

25. London differs from other cities, such as Paris and  
 New York, in that its shopping areas are so widely  
 spread out. No error

A B  
C D  
E

26. The architect's research shows that even when builders  
construct houses of stone , they still use the hammer  
 more than any tool . No error

A B C  
D E

27. Of the two options, neither the system of appointing  
 judges to the bench nor the process of electing judges  
are entirely satisfactory. No error

A B C  
D E

28. Carlos cherished the memory of the day when him  
 and his sister Rosa were presented with awards  
in recognition of meritorious service to the  
 community. No error

A B C D  
E

25. The famous filmmaker had a tendency of changing  
 his recollections, perhaps out of boredom at having  
 to tell interviewers the same story over and over.

A B  
C D  
No error  
E

26. Norwegian writer Sigrid Undset is like the novelist Sir  
 Walter Scott in her use of historical backgrounds, but  
 unlike his books , she dwells on the psychological  
aspects of her characters. No error

A  
B C  
D E

27. The television station has received many complaints  
about the clothing advertisements, which some  
 viewers condemn to be tasteless. No error

A B C  
D E

28. The relationship between goby fish and striped shrimp  
are truly symbiotic, for neither can survive without  
 the other. No error

A B C D  
E

29. Winston Churchill, unlike many English prime  
 ministers before him , had deep insight into the  
workings of the human mind. No error

A B C  
D E



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

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

**Questions 30-35 are based on the following passage.**

(1) My father has an exceptional talent. (2) The ability to understand people. (3) When I have a problem that I think no one else will understand, I take it to my father. (4) He listens intently, asks me some questions, and my feelings are seemingly known by him exactly. (5) Even my twin sister can talk to him more easily than to me. (6) Many people seem too busy to take the time to understand one another. (7) My father, by all accounts, sees taking time to listen as essential to any relationship, whether it involves family, friendship, or work.

(8) At work, my father's friends and work associates benefit from this talent. (9) His job requires him to attend social events and sometimes I go along. (10) I have watched him at dinner; his eyes are fixed on whoever is speaking, and he nods his head at every remark. (11) My father emerges from such a conversation with what I believe is a true sense of the speaker's meaning. (12) In the same way, we choose our friends.

(13) My father's ability to listen affects his whole life. (14) His ability allows him to form strong relationships with his coworkers and earns him lasting friendships. (15) It allows him to have open conversations with his children. (16) Furthermore, it has strengthened his relationship with my mother. (17) Certainly, his talent is one that I hope to develop as I mature.

30. Of the following, which is the best way to revise and combine sentences 1 and 2 (reproduced below) ?

*My father has an exceptional talent. The ability to understand people.*

- (A) My father has an exceptional talent and the ability to understand people.
- (B) My father has an exceptional talent that includes the ability to understand people.
- (C) My father has an exceptional talent: the ability to understand people.
- (D) My father has an exceptional talent, it is his ability to understand people.
- (E) Despite my father's exceptional talent, he still has the ability to understand people.

31. Of the following, which is the best way to phrase sentence 4 (reproduced below) ?

*He listens intently, asks me some questions, and my feelings are seemingly known by him exactly.*

- (A) (As it is now)
- (B) Listening intently, he will ask me some questions and then my exact feelings are seemingly known to him.
- (C) As he listens to me and asks me some questions, he seems to be knowing exactly my feelings.
- (D) He listened to me and asked me some questions, seeming to know exactly how I felt.
- (E) He listens intently, asks me some questions, and then seems to know exactly how I feel.

32. In sentence 7, the phrase *by all accounts* is best replaced by

- (A) however
- (B) moreover
- (C) to my knowledge
- (D) like my sister
- (E) but nevertheless

33. Which of the following sentences should be omitted to improve the unity of the second paragraph?

- (A) Sentence 8
- (B) Sentence 9
- (C) Sentence 10
- (D) Sentence 11
- (E) Sentence 12



34. In context, which of the following is the best way to phrase the underlined portion of sentence 16 (reproduced below)?

*Furthermore, it has strengthened his relationship with my mother.*

- (A) (As it is now)
- (B) Further strengthening
- (C) But it strengthens
- (D) However, he is strengthening
- (E) Considering this, he strengthens

35. A strategy that the writer uses within the third paragraph is to

- (A) make false assumptions and use exaggeration
- (B) include difficult vocabulary
- (C) repeat certain words and sentence patterns
- (D) argue in a tone of defiance
- (E) turn aside from the main subject

**STOP**

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

**SECTION 5**  
Time — 25 minutes  
23 Questions

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

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

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

**Example:**

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

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

(A) (B) (C) (D) ●

1. Scientific discoveries are often thought of as the result of ----- effort, but many discoveries have, in fact, arisen from ----- or a mistake.
- (A) conscientious . . a method  
(B) incidental . . a mishap  
(C) collaborative . . a design  
(D) persistent . . an extension  
(E) systematic . . an accident

2. Nations that share a border are, by definition, -----.
- (A) allied (B) partisan (C) contiguous  
(D) pluralistic (E) sovereign
3. Much of this author's work, unfortunately, is -----, with ----- chapter often immediately following a sublime one.
- (A) mystical . . a superior  
(B) uneven . . a mediocre  
(C) predictable . . an eloquent  
(D) enthralling . . a vapid  
(E) flippant . . an intelligible
4. In young children, some brain cells have a ----- that enables them to take over the functions of damaged or missing brain cells.
- (A) fragility (B) reminiscence  
(C) perniciousness (D) whimsicality  
(E) plasticity
5. "Less government spending" is ----- of this political party, a belief shared by most party members.
- (A) an acronym (B) a retraction (C) a tenet  
(D) a plight (E) a prospectus



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 6-7 are based on the following passage.

Duke Ellington considered himself “the world’s greatest listener.” In music, hearing is all. Judging by the two or three thousand pieces of music Ellington wrote, he could probably hear a flea scratching itself and put that rhythm into one of his compositions. For him the sounds of the world were the ingredients he mixed into appetizers, main courses, and desserts to satisfy the appetite of his worldwide audience. He wasn’t averse to going out in a boat to catch the fish himself. He would raise the fowl himself. But when that musical meal appeared before you none of the drudgery showed.

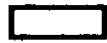
6. The author most likely refers to the “flea” in line 4 in order to
- (A) highlight Ellington’s prodigious memory  
 (B) emphasize the quality of Ellington’s listening skills  
 (C) indicate Ellington’s interest in different animal sounds  
 (D) suggest that Ellington’s compositions were marked by rhythmic similarities  
 (E) imply that Ellington could be overly concerned about minutia
7. In lines 5-11 (“For him . . . drudgery showed”), the author’s point is primarily developed through the use of
- (A) comparison and contrast  
 (B) appeal to emotion  
 (C) exaggeration  
 (D) metaphor  
 (E) humor

Questions 8-9 are based on the following passage.

In the summer of 1911, the explorer Hiram Bingham III bushwhacked his way to a high ridge in the Andes of Peru and beheld a dreamscape out of the past. There, set against  
 Line 5 looming peaks cloaked in snow and wreathed in clouds, was Machu Picchu, the famous “lost city” of the Incas. This expression, popularized by Bingham, served as a magical elixir for rundown imaginations. The words evoked the romanticism of exploration and archaeology at the time. But finding Machu Picchu was easier than  
 10 solving the mystery of its place in the rich and powerful Inca empire. The imposing architecture attested to the skill and audacity of the Incas. But who had lived at this isolated site and for what purpose?

8. The words “magical elixir” (line 7) primarily emphasize the
- (A) motivation for an expedition  
 (B) captivating power of a phrase  
 (C) inspiration behind a discovery  
 (D) creative dimension of archaeology  
 (E) complexity of an expression
9. The “mystery” discussed in lines 10-13 is most analogous to that encountered in which of the following situations?
- (A) Being unable to locate the source of materials used to construct an ancient palace  
 (B) Being unable to reconcile archaeological evidence with mythical descriptions of an ancient city  
 (C) Being unable to explain how ancient peoples constructed imposing monuments using only primitive technology  
 (D) Being unable to understand the religious function of a chamber found inside an ancient temple  
 (E) Being unable to discover any trace of a civilization repeatedly mentioned by ancient authors





Questions 10-14 are based on the following passage.

*This passage is from the preface to a 1997 book by a United States journalist detailing a disagreement between doctors and family members about a child's medical treatment at a hospital in California.*

Under my desk I keep a large carton of cassette tapes. Though they have all been transcribed, I still like to listen to them from time to time.

Line Some are quiet and easily understood. They are filled  
5 with the voices of American doctors, interrupted occasionally by the clink of a coffee cup or beep of a pager. The rest—more than half of them—are very noisy. They are filled with the voices of the Lees family, Hmong refugees from Laos who came to the United States in 1980. Against  
10 a background of babies crying, children playing, doors slamming, dishes clattering, a television yammering, and an air conditioner wheezing, I can hear the mother's voice, by turns breathy, nasal, gargly, or humlike as it slides up and down the Hmong language's eight tones; the father's voice,  
15 louder, slower, more vehement; and my interpreter's voice, mediating in Hmong and English, low and deferential in each. The hubbub summons sense-memories: the coolness of the red metal folding chair, reserved for guests, that was always set up when I arrived in the apartment; the shadows  
20 cast by the amulet that hung from the ceiling and swung in the breeze on its length of grocer's twine; the tastes of Hmong food.

I sat on the Lees' red chair for the first time on  
25 May 19, 1988. Earlier that spring I had come to Merced, California, because I had heard that there were some misunderstandings at the county hospital between its Hmong patients and medical staff. One doctor called them "collisions," which made it sound as if two different kinds of people had rammed into each other, head on, to the  
30 accompaniment of squealing brakes and breaking glass. As it turned out, the encounters were messy but rarely frontal. Both sides were wounded, but neither side seemed to know what had hit it or how to avoid another crash.

I have always felt that the action most worth watching  
35 occurs not at the center of things but where edges meet. I like shorelines, weather fronts, international borders. These places have interesting frictions and incongruities, and often, if you stand at the point of tangency, you can see both sides better than if you were in the middle of either  
40 one. This is especially true when the apposition is cultural. When I first came to Merced, I hoped that the culture of American medicine, about which I knew a little, and the culture of the Hmong, about which I knew nothing, would somehow illuminate each other if I could position myself  
45 between the two and manage not to get caught in the cross-fire. But after getting to know the Lees family and their

daughter's doctors and realizing how hard it was to blame anyone, I stopped analyzing the situation in such linear terms. Now, when I play the tapes late at night, I imagine  
50 what they would sound like if I could splice them together, so the voices of the Hmong and those of the American doctors could be heard on a single tape, speaking a common language.

10. In line 17, "summons" most nearly means

- (A) sends for
- (B) calls forth
- (C) requests
- (D) orders
- (E) convenes

11. It can be inferred from lines 27-33 that "collisions" was NOT an apt description because the

- (A) clash between Hmong patients and medical staff was indirect and baffling
- (B) Hmong patients and the medical staff were not significantly affected by the encounters
- (C) medical staff was not responsible for the dissatisfaction of the Hmong patients
- (D) misunderstandings between the Hmong patients and the medical staff were easy to resolve
- (E) disagreement reached beyond particular individuals to the community at large

12. Which of the following views of conflict is best supported by lines 37-40 ("These . . . one")?

- (A) Efforts to prevent conflicts are not always successful.
- (B) Conflict can occur in many different guises.
- (C) In most conflicts, both parties are to blame.
- (D) You can understand two parties that have resolved their conflicts better than two parties that are currently in conflict.
- (E) You can learn more about two parties in conflict as an observer than as an involved participant.



13. According to lines 41-46 ("When I . . . crossfire"), the author's initial goal was to
- (A) consider the perspectives of both the American doctors and the Lees family to see what insights might develop
  - (B) serve as a counselor to the county hospital's Hmong patients in order to ease their anxieties
  - (C) work out a compromise between the American doctors and the Lees family
  - (D) acquire a greater knowledge of how the American medical culture serves patients
  - (E) try to reduce the misunderstandings between the American doctors and the Lees family and promote good will
14. At the end of the passage, the author suggests that it would be ideal if the
- (A) differences between the Lees family and the American doctors could be resolved quickly
  - (B) concerns and opinions of the Lees family and the American doctors could be merged
  - (C) American doctors could take the time to learn more about their Hmong patients
  - (D) Hmong patients could become more vocal in defense of their rights
  - (E) Hmong patients could get medical treatment consistent with their cultural beliefs

Questions 15-23 are based on the following passages.

*"Cloning" is the creation of a new individual from the unique DNA (or genetic information) of another. The successful cloning of a sheep named Dolly in 1997 sparked a debate over the implications of cloning humans. Each of the passages below was written in 1997.*

### Passage 1

Cloning creates serious issues of identity and individuality. The cloned person may experience concerns about his or her distinctive identity, not only because the person will be in genotype (genetic makeup) and appearance identical to another human being, but, in this case, because he or she may also be twin to the person who is the "father" or "mother"—if one can still call them that. What would be the psychic burdens of being the "child" or "parent" of your twin? The cloned individual, moreover, will be saddled with a genotype that has already lived. He or she will not be fully a surprise to the world.

People will likely always compare a clone's performance in life with that of the original. True, a cloned person's nurture and circumstances in life will be different; genotype is not exactly destiny. Still, one must also expect parental and other efforts to shape this new life after the original—or at least to view the child with the original vision always firmly in mind. Why else then would they clone from the star basketball player, mathematician, and beauty queen—or even dear old dad—in the first place?

Since the birth of Dolly, there has been a fair amount of doublespeak on this matter of genetic identity. Experts have rushed in to reassure the public that the clone would in no way be the same person, or have any confusions about his or her identity; they are pleased to point out that the clone of film star Julia Roberts would not be Julia Roberts. Fair enough. But one is shortchanging the truth by emphasizing the additional importance of the environment, rearing, and social setting: genotype obviously matters plenty. That, after all, is the only reason to clone, whether human beings or sheep. The odds that clones of basketball star Larry Bird will play basketball are, I submit, infinitely greater than they are for clones of jockey Willie Shoemaker.

### Passage 2

Given all the brouhaha, you'd think it was crystal clear why cloning human beings is unethical. But what exactly is wrong with it? What would a clone be? Well, he or she would be a complete human being who happens to share the same genes with another person. Today, we call such people identical twins. To my knowledge no one has argued that twins are immoral. "You should treat all clones like you would treat all monozygous [identical] twins or triplets," concludes Dr. H. Tristram Engelhardt, a professor

of medicine at Baylor and a philosopher at Rice University. "That's it." It would be unethical to treat a human clone as anything other than a human being.

Some argue that the existence of clones would undermine the uniqueness of each human being. "Can individuality, identity, and dignity be severed from genetic distinctiveness, and from belief in a person's open future?" asks political thinker George Will. Will and others have fallen under the sway of what one might call "genetic essentialism," the belief that genes almost completely determine who a person is. But a person who is a clone would live in a very different world from that of his or her genetic predecessor. With greatly divergent experiences, their brains would be wired differently. After all, even twins who grow up together are separate people—distinct individuals with different personalities and certainly no lack of Will's "individuality, identity, and dignity."

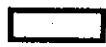
But what about cloning exceptional human beings? George Will put it this way: "Suppose a clone of basketball star Michael Jordan, age 8, preferred violin to basketball? Is it imaginable? If so, would it be tolerable to the cloner?" Yes, it is imaginable, and the cloner would just have to put up with violin recitals. Kids are not commercial property. Overzealous parents regularly push their children into sports, music, and dance lessons, but given the stubborn nature of individuals, those parents rarely manage to make kids stick forever to something they hate. A ban on cloning wouldn't abolish pushy parents.

15. The authors of both passages agree that

- (A) genetic characteristics alone cannot determine a person's behavior
- (B) a formal code of ethical rules will be needed once human beings can be cloned
- (C) people who are cloned from others may have greater professional opportunities
- (D) identical twins and triplets could provide useful advice to people related through cloning
- (E) cloning human beings is a greater technological challenge than cloning sheep

16. In line 13, the author of Passage 1 uses the word "True" to indicate

- (A) acknowledgement that the passage's opening arguments are tenuous
- (B) recognition of a potential counterargument
- (C) conviction about the accuracy of the facts presented
- (D) distrust of those who insist on pursuing cloning research
- (E) certainty that cloning will one day become commonplace



17. The question in lines 18-20 ("Why else . . . first place") chiefly serves to
- (A) suggest that some issues are not easily resolved
  - (B) argue for the importance of parents in the lives of children
  - (C) offer an anecdote revealing the flaw in a popular misconception
  - (D) imply that cloning might displace more familiar means of reproduction
  - (E) suggest the value perceived in a person who might be selected for cloning
18. In line 21, "fair" most nearly means
- (A) considerable
  - (B) pleasing
  - (C) ethical
  - (D) just
  - (E) promising
19. The author of Passage 1 mentions two sports stars (lines 31-33) in order to
- (A) argue against genetic analysis of any sports star's physical abilities
  - (B) distinguish between lasting fame and mere celebrity
  - (C) clarify the crucial role of rigorous, sustained training
  - (D) highlight the need for greater understanding of the athletes' genetic data
  - (E) suggest that athletes' special skills have a genetic component
20. In line 49, "open" most nearly means
- (A) overt
  - (B) frank
  - (C) unrestricted
  - (D) unprotected
  - (E) public
21. In line 55, "divergent experiences" emphasizes that which of the following is particularly important for a developing child?
- (A) Character
  - (B) Heritage
  - (C) Intelligence
  - (D) Environment
  - (E) Personality
22. In the quotation in lines 61-64, George Will primarily draws attention to
- (A) a weakness inherent in cloning theory
  - (B) a goal that some advocates of cloning might share
  - (C) the limitations of human individuality
  - (D) the likelihood that children will rebel against their parents
  - (E) the extent to which a cloned person might differ from the original person
23. Both passages base their arguments on the unstated assumption that
- (A) genetic distinctiveness is crucial to human survival as a species
  - (B) public concern about human cloning will eventually diminish
  - (C) human cloning is a genuine possibility in the future
  - (D) individualism is less prized today than it has been in the past
  - (E) technological advances have had a mostly positive impact on society

**STOP**

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

**SECTION 6**  
 Time — 25 minutes  
 20 Questions

**Turn to Section 6 (page 6) 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 scratchwork.

- Notes**
- The use of a calculator is permitted.
  - All numbers used are real numbers.
  - 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.
  - 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**

$A = \pi r^2$   
 $C = 2\pi r$

$A = lw$

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

$V = lwh$

$V = \pi r^2 h$

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

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. Each of the following is a factor of 80 EXCEPT

- (A) 5
- (B) 8
- (C) 12
- (D) 16
- (E) 40

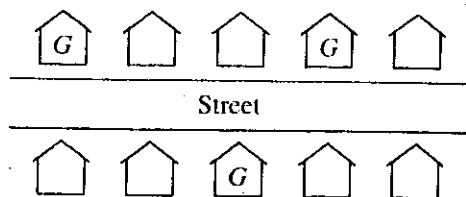
$$k = 3wx$$

$$m = (w - 1)k$$

2. If  $k$  and  $m$  are defined by the equations above, what is the value of  $m$  when  $w = 4$  and  $x = 1$ ?

- (A) 0
- (B) 3
- (C) 12
- (D) 24
- (E) 36

**GO ON TO THE NEXT PAGE**



3. There are five houses on each side of a street, as shown in the figure above. No two houses next to each other on the same side of the street and no two houses directly across from each other on opposite sides of the street can be painted the same color. If the houses labeled *G* are painted gray, how many of the seven remaining houses cannot be painted gray?

- (A) Two  
(B) Three  
(C) Four  
(D) Five  
(E) Six

4. If  $7^n \times 7^3 = 7^{12}$ , what is the value of  $n$ ?

- (A) 2  
(B) 4  
(C) 9  
(D) 15  
(E) 36

PRICES

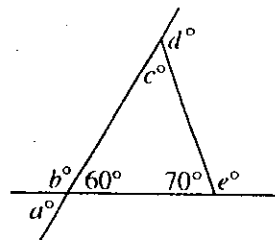
|      | Table | Chair |
|------|-------|-------|
| 1990 | \$240 | \$25  |
| 1995 | \$265 | \$30  |
| 2000 | \$280 | \$36  |

INVENTORY CAPACITY

|        | Warehouse |     |     |
|--------|-----------|-----|-----|
|        | X         | Y   | Z   |
| Tables | 30        | 80  | 30  |
| Chairs | 125       | 200 | 140 |

5. A furniture company makes one style of tables and chairs. The chart on the left above gives the prices of these tables and chairs in three different years. The chart on the right gives the maximum number of tables and chairs that can be stocked in each of three warehouses, X, Y, and Z. Based on the prices shown, what was the maximum possible value of the table and chair inventory in warehouse Y in 1995?

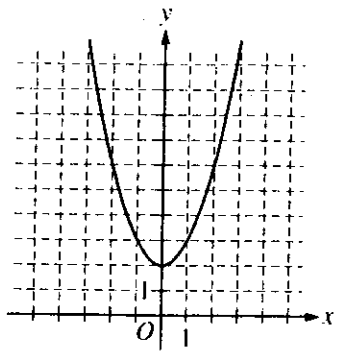
- (A) \$23,950  
(B) \$26,500  
(C) \$27,200  
(D) \$28,400  
(E) \$29,500



6. In the figure above, which of the following is greatest?

- (A)  $a$   
(B)  $b$   
(C)  $c$   
(D)  $d$   
(E)  $e$

GO ON TO THE NEXT PAGE



7. Which of the following could be the equation of the graph above?
- (A)  $y = x^2 + 2$
  - (B)  $y = (x + 2)^2$
  - (C)  $y = x^2 - 2$
  - (D)  $y = (x - 2)^2$
  - (E)  $y = 2x^2$

8. What is the total number of right angles formed by the edges of a cube?
- (A) 36
  - (B) 24
  - (C) 20
  - (D) 16
  - (E) 12

9. If  $(p + 1)(t - 3) = 0$  and  $p$  is positive, what is the value of  $t$ ?
- (A) -3
  - (B) -1
  - (C) 0
  - (D) 1
  - (E) 3

|            |
|------------|
| $(x, y)$   |
| $(0, 100)$ |
| $(1, 99)$  |
| $(2, 96)$  |

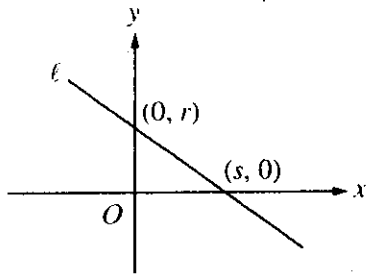
10. Which of the following equations describes  $y$  in terms of  $x$  for all ordered pairs in the table above?
- (A)  $y = 100 - x^2$
  - (B)  $y = 100 - x$
  - (C)  $y = 100 - 2x$
  - (D)  $y = 100 - 4x$
  - (E)  $y = 100 - 100x$

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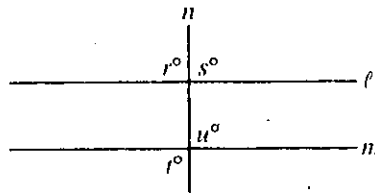
11. A stamp collecting club calculated that the average (arithmetic mean) number of stamps in its members' 10 collections was 88. However, it was discovered that 2 numbers in the calculations were entered incorrectly. The number 55 was entered as 75 and the number 78 as 88. What is the correct average number of stamps in the 10 collections?

- (A) 91  
(B) 89  
(C) 87  
(D) 86  
(E) 85



12. In the figure above, what is the slope of line  $l$ ?

- (A)  $-\frac{r}{s}$   
(B)  $\frac{r}{s}$   
(C)  $-\frac{s}{r}$   
(D)  $\frac{s}{r}$   
(E)  $-\frac{1}{rs}$

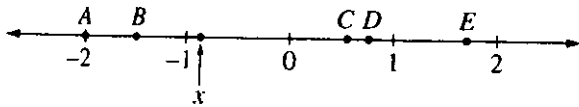


13. In the figure above, if  $l \parallel m$  and  $r = 91$ , then  $t + u =$

- (A) 178  
(B) 179  
(C) 180  
(D) 181  
(E) 182

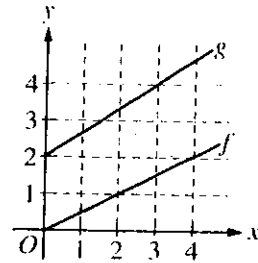
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14. If  $x$  is the coordinate of the indicated point on the number line above, which of the lettered points has coordinate  $-2x$ ?

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



16. The graphs of the functions  $f$  and  $g$  are lines, as shown above. What is the value of  $f(3) + g(3)$ ?

(A) 1.5  
(B) 2  
(C) 3  
(D) 4  
(E) 5.5

15. Points  $X$  and  $Y$  are two different points on a circle. Point  $M$  is located so that line segment  $\overline{XM}$  and line segment  $\overline{YM}$  have equal length. Which of the following could be true?

I.  $M$  is the center of the circle.  
II.  $M$  is on arc  $\widehat{XY}$ .  
III.  $M$  is outside of the circle.

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

17. If  $A$  is the set of prime numbers and  $B$  is the set of two-digit positive integers whose units digit is 5, how many numbers are common to both sets?

(A) None  
(B) One  
(C) Two  
(D) Five  
(E) Nine

GO ON TO THE NEXT PAGE



8. If 75 percent of  $m$  is equal to  $k$  percent of 25, where  $k > 0$ , what is the value of  $\frac{m}{k}$ ?

- (A)  $\frac{3}{16}$
- (B)  $\frac{1}{3}$
- (C)  $\frac{3}{4}$
- (D) 3
- (E)  $\frac{16}{3}$

9.  $R$  is the midpoint of line segment  $\overline{PT}$ , and  $Q$  is the midpoint of line segment  $\overline{PR}$ . If  $S$  is a point between  $R$  and  $T$  such that the length of segment  $\overline{QS}$  is 10 and the length of segment  $\overline{PS}$  is 19, what is the length of segment  $\overline{ST}$ ?

- (A) 13
- (B) 14
- (C) 15
- (D) 16
- (E) 17

20. A telephone company charges  $x$  cents for the first minute of a call and charges for any additional time at the rate of  $y$  cents per minute. If a certain call costs \$5.55 and lasts more than 1 minute, which of the following expressions represents the length of that call, in minutes?

- (A)  $\frac{555 - x}{y}$
- (B)  $\frac{555 + x - y}{y}$
- (C)  $\frac{555 - x + y}{y}$
- (D)  $\frac{555 - x - y}{y}$
- (E)  $\frac{555}{x + y}$

**STOP**

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

**SECTION 8**

Time — 20 minutes

19 Questions

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

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

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

**Example:**

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

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

(A) (B) (C) (D) ●

- Unable to discover how the fire started, the inspectors filed a tentative report stating that the cause was -----.  
(A) noteworthy (B) definitive (C) fundamental  
(D) conclusive (E) indeterminate
- The celebrants at the ----- party for Cinco De Mayo were understandably ----- by the spectacle of the mariachi bands and the colorful piñatas for the children.  
(A) somber . . amused  
(B) lavish . . dazzled  
(C) novel . . jaded  
(D) mundane . . astounded  
(E) joyous . . stymied
- "Hawaii" refers both to the group of islands known as the Hawaiian islands and to the largest island in that -----.  
(A) flora (B) sierra (C) archipelago  
(D) flotilla (E) savanna
- Given the exponential growth of scientific knowledge, medicine is far less ----- unsubstantiated fads than it used to be; its record of folly, however, remains an undeniable -----.  
(A) suspicious of . . qualification  
(B) averse to . . encumbrance  
(C) vulnerable to . . embarrassment  
(D) dependent on . . impossibility  
(E) ignorant of . . oversight
- The aspiring writer, who remained ----- even after being rejected by several major publishers, felt certain of achieving literary -----.  
(A) hopeless . . vindication  
(B) disgruntled . . talent  
(C) optimistic . . abasement  
(D) undaunted . . celebrity  
(E) obsequious . . neglect
- Fred often used ----- to achieve his professional goals, even though such artful subterfuge alienated his colleagues.  
(A) chicanery (B) diligence (C) bombast  
(D) disputation (E) consensus



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.

*In the following passage from a newspaper commentary written in 1968, an architecture critic discusses old theaters and concert halls.*

After 50 years of life and 20 years of death, the great Adler and Sullivan Auditorium in Chicago is back in business again. Orchestra Hall, also in Chicago, was beautifully spruced up for its sixty-eighth birthday. In St. Louis, a 1925 movie palace has been successfully transformed into Powell Symphony Hall, complete with handsome bar from New York's demolished Metropolitan Opera House.

Sentimentalism? Hardly. This is no more than a practical coming of cultural age, a belated recognition that fine old buildings frequently offer the most for the money in an assortment of values, including cost, and above all, that new cultural centers do not a culture make. It indicates the dawning of certain sensibilities, perspectives, and standards without which arts programs are mockeries of everything the arts stand for.

The last decade has seen city after city rush pell-mell into the promotion of great gobs of cultural real estate. It has seen a few good new theaters and a lot of bad ones, temples to bourgeois muses with all the panache of suburban shopping centers. The practice has been to treat the arts in chamber-of-commerce, rather than in creative, terms. That is just as tragic as it sounds.

The trend toward preservation is significant not only because it is saving and restoring some superior buildings that are testimonials to the creative achievements of other times, but also because it is bucking the conventional wisdom of the conventional power structure that provides the backing for conventional cultural centers to house the arts.

That wisdom, as it comes true-blue from the hearts and minds of real estate dealers and investment bankers, is that you don't keep old buildings; they are obsolete. Anything new is better than anything old and anything big is better than anything small, and if a few cultural values are lost along the way, it is not too large a price to pay. In addition, the new, big buildings must be all in one place so they will show. They'll not only serve the arts, they'll improve the surrounding property values. Build now, and fill them later.

At the same time, tear down the past, rip out cultural roots, erase tradition, rub out the architectural evidence that the arts flowered earlier in our cities and enriched them and that this enrichment *is* culture. Substitute a safe and sanitary status symbol for the loss. Put up the shiny mediocrities of the present and demolish the shabby masterpieces of the

past. That is the ironic other side of the "cultural explosion" coin. In drama, and in life, irony and tragedy go hand in hand.

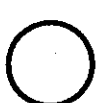
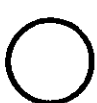
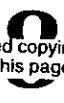
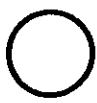
Chicago's Auditorium is such a masterpiece. With its glowing, golden ambiance, its soaring arches and super-stage from which whispers can be heard in the far reaches of the theater, it became a legend in its own time. One of the great nineteenth-century works of Louis Sullivan and Dankmar Adler and an anchor point of modern architectural history, it has been an acknowledged model of acoustical and aesthetic excellence. (Interestingly, the Auditorium is a hard theater in which to install microphones today, and many modern performers, untrained in balance and projection and reliant on technical mixing of sound, find it hard to function in a near-perfect house.)

Until October 1967, the last performance at the Auditorium was of *Hellzapoppin'* in 1941, and the last use of the great stage was for bowling alleys during the Second World War. Closed after that, it settled into decay for the next 20 years. Falling plaster filled the hall, and the golden ceiling was partly ruined by broken roof drains. Last fall the Auditorium reopened, not quite in its old glory, but close to it. The splendors of the house were traced in the eight-candlepower glory of carbon-filament lightbulbs of the same kind used in 1889 when the theater, and electricity, were new. Their gentle brilliance picked out restored architectural features in warm gilt and umber.

We have never had greater technical means or expertise to make our landmarks bloom. The question is no longer whether we can bring old theaters back to new brilliance, but whether we can fill them when they're done. As with the new centers, that will be the acid cultural test.

7. The principal function of the opening paragraph is to

- (A) introduce the concept of conventional arts centers
- (B) illustrate the trend toward revitalization of cultural landmarks
- (C) explore the connection between classical architecture and the arts
- (D) provide an explanation for the theater's resurgent popularity
- (E) contrast the beauty of old theaters with ordinary modern buildings



8. On the basis of information provided in the rest of the passage, the word "death" (line 1) best conveys
- (A) flagging attendance
  - (B) wartime malaise
  - (C) demolition
  - (D) neglect
  - (E) disrepute
9. The bar mentioned in line 7 had apparently been
- (A) costly but symbolic
  - (B) beautiful but outdated
  - (C) enlarged and elongated
  - (D) treasured and imitated
  - (E) rescued and relocated
10. The question in line 9 is intended to
- (A) expose the folly of the new construction
  - (B) convey the emotional burdens of the past
  - (C) provide a typical explanation for the renovations
  - (D) lament the decline of cultural values
  - (E) address the public's indifference toward old buildings
11. In lines 13-14, the phrase "new . . . make" most directly suggests that
- (A) modern architects lack the artistic reputations of their predecessors
  - (B) the commercial treatment of culture encourages art that is mass-produced
  - (C) culture evolves out of tradition and cannot be instantly created
  - (D) historically significant venues positively influence the creative process
  - (E) new cultural centers should be constructed in collaboration with artists
12. The description in lines 20-21 ("temples . . . centers") best serves to
- (A) scorn the architects' commitment to historically accurate renovations
  - (B) mock the timeworn theatrical works showcased in modern cultural centers
  - (C) deprecate the appearance and character of many new theaters
  - (D) downplay the government's efforts to support the arts
  - (E) poke good-humored fun at commercial establishments
13. As described in lines 17-23, the "practice" refers to the
- (A) commercialization of culture
  - (B) preservation of cultural treasures
  - (C) construction of shopping centers
  - (D) government funding of the arts
  - (E) distortion of theatrical works
14. In lines 27-30, the author uses the word "conventional" several times in order to
- (A) reveal the performers' frustration with modern theaters
  - (B) disparage the present-day treatment of the arts
  - (C) parody the creative efforts of contemporary artists
  - (D) emphasize the absurdity of a purely aesthetic approach to the arts
  - (E) exaggerate the importance of tradition in the arts
15. The fifth paragraph (lines 31-39) primarily serves to
- (A) criticize the way in which cultural buildings are viewed as commodities
  - (B) assess the positive impact of the architects' backlash against mediocrity
  - (C) contrast the business practices of real estate brokers with those of bankers
  - (D) enumerate the costs and benefits of restoring historic landmarks
  - (E) question the importance of the arts to society



16. What does the imagery in lines 40-43 suggest?
- (A) The dawning of an enlightened artistic sensibility has stimulated support for preserving historic theaters.
  - (B) The ill-conceived mandate to destroy architectural masterpieces epitomizes the censorship of creative expression.
  - (C) The desire for societal status symbols drives the construction of grandiose cultural centers.
  - (D) The demolition of a historic landmark is tantamount to the destruction of an invaluable cultural legacy.
  - (E) The restoration of intimate old theaters will speed the demise of large new arenas.
17. In lines 49-56, the description of the building primarily serves to
- (A) convey an appreciation for the technical complexities of renovating theaters
  - (B) illustrate how nineteenth-century architecture directly influenced modern building design
  - (C) highlight some unique aspects of an example of fine architecture
  - (D) explain why some people disdain innovative architecture
  - (E) show how restoration can strip a building of its unique character
18. In lines 56-60, the author's comment about microphones implies that
- (A) the near-perfect acoustics in a new theater divert attention from the building's aesthetic flaws
  - (B) audience members seated in the theater's balcony cannot fully appreciate the nuances of the performers' intonations
  - (C) the performances of modern-day actors tend to be overly dependent on technology
  - (D) the absence of technically sophisticated equipment has jeopardized the sound quality of performances
  - (E) old theaters can remain viable because they readily accommodate the new sound technology that enhances a performance
19. Which challenge is emphasized by the author in the final paragraph (lines 73-77) ?
- (A) Designating theaters as historical landmarks
  - (B) Renewing a respect for architecture
  - (C) Providing opportunities for new artists
  - (D) Reviving classical plays
  - (E) Attracting appreciative audiences

**STOP**

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

**SECTION 9**  
**Time — 20 minutes**  
**16 Questions**

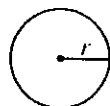
**Turn to Section 9 (page 7) of your answer sheet to answer the questions in this section.**

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

Notes

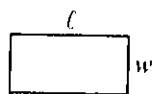
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
- 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

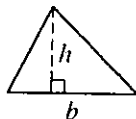


$$A = \pi r^2$$

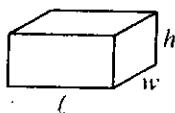
$$C = 2\pi r$$



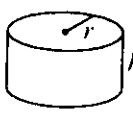
$$A = lw$$



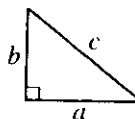
$$A = \frac{1}{2}bh$$



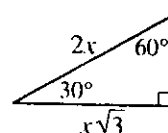
$$V = lwh$$



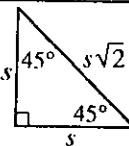
$$V = \pi r^2 h$$



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



Special Right Triangles

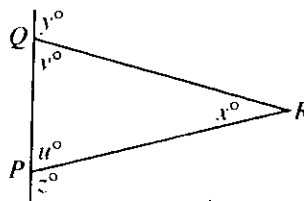


The number of degrees of arc in a circle is 360.

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

1. Conall had a box of 36 candy bars to sell for a class fundraiser. He sold 10 of the bars on his own, and his mother sold half of the remaining bars to her coworkers. If no other bars were sold, what fraction of Conall's original 36 bars remained unsold?

- (A)  $\frac{5}{8}$   
 (B)  $\frac{11}{36}$   
 (C)  $\frac{1}{3}$   
 (D)  $\frac{13}{36}$   
 (E)  $\frac{7}{18}$

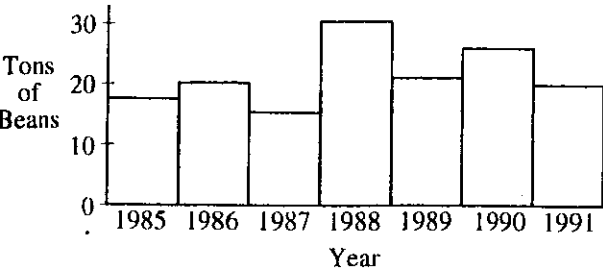


2. In  $\triangle PQR$  above,  $PR = QR$ . Which of the following must be true?

- (A)  $u = x$   
 (B)  $x = v$   
 (C)  $x = z$   
 (D)  $y = x$   
 (E)  $y = z$

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### BEAN PRODUCTION



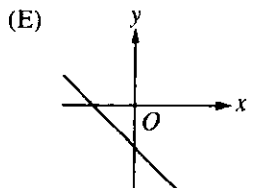
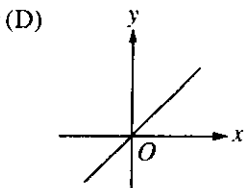
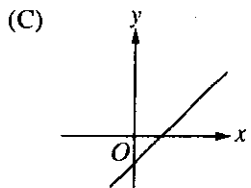
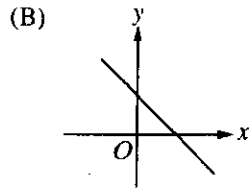
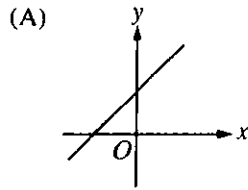
The bar graph above shows the number of tons of beans produced on a large farm for the years 1985 through 1991. For which of the following two-year periods was the average (arithmetic mean) bean production closest to the bean production in 1985?

- (A) 1986-1987
- (B) 1987-1988
- (C) 1988-1989
- (D) 1989-1990
- (E) 1990-1991

Marcus can spend no more than \$120 on jeans and shirts for school. He buys 3 pairs of jeans at \$32 each. If  $x$  represents the dollar amount he can spend on shirts, which of the following inequalities could be used to determine the possible values for  $x$ ?

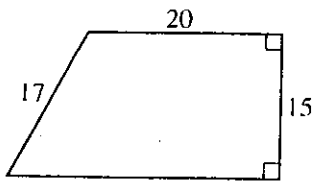
- (A)  $(3) \cdot 32 - x \leq 120$
- (B)  $(3) \cdot 32 - x \geq 120$
- (C)  $(3) \cdot 32 + x \leq 120$
- (D)  $(3) \cdot 32 + x \geq 120$
- (E)  $x \leq (3) \cdot 32$

5. If  $y$  is directly proportional to  $x$ , which of the following could be the graph that shows the relationship between  $y$  and  $x$ ?



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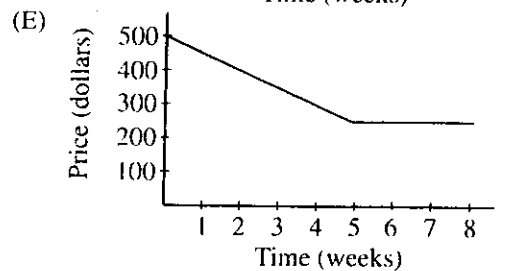
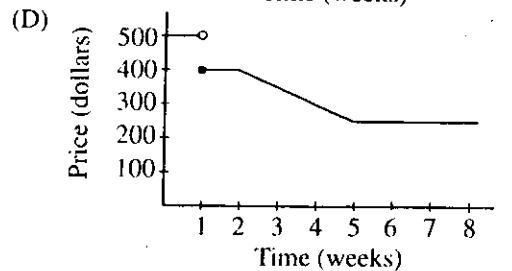
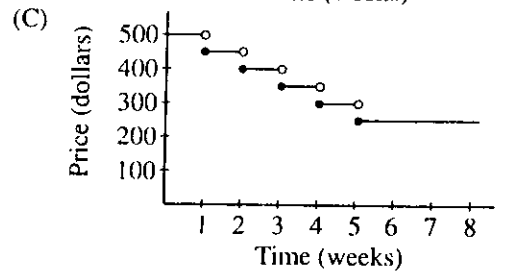
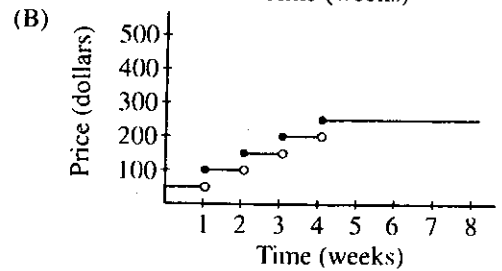
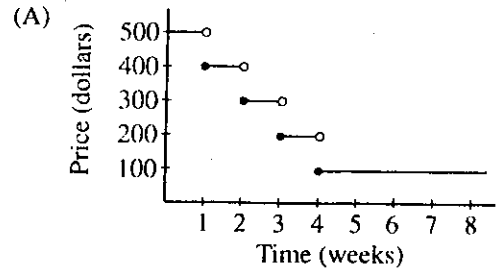




6. What is the perimeter of the trapezoid above?

- (A) 52
- (B) 72
- (C) 75
- (D) 80
- (E) 87

7. A store discounts merchandise by 10 percent of the original price at the end of each week and stops when the merchandise is priced at 50 percent of the original price. Which of the following graphs could correctly represent the price of an article of merchandise over an eight-week period?



GO ON TO THE NEXT PAGE



8. If  $\frac{x+y}{a-b} = \frac{2}{3}$ , then  $\frac{9x+9y}{10a-10b} =$

- (A)  $\frac{9}{10}$   
 (B)  $\frac{20}{23}$   
 (C)  $\frac{20}{27}$   
 (D)  $\frac{2}{3}$   
 (E)  $\frac{3}{5}$

9. The interior dimensions of a rectangular fish tank are 4 feet long, 3 feet wide, and 2 feet high. The water level in the tank is 1 foot high. All of the water in this tank is poured into an empty second tank. If the interior dimensions of the second tank are 3 feet long, 2 feet wide, and 4 feet high, what is the height of the water in the second tank?

- (A) 0.5 ft  
 (B) 1 ft  
 (C) 1.5 ft  
 (D) 2 ft  
 (E) 4 ft

1, 2, 3

10. If  $m$ ,  $n$ , and  $k$  are to be assigned different values from the list above, how many different values will be possible for the expression  $(m+n)^k$ ?

- (A) Three  
 (B) Four  
 (C) Five  
 (D) Eight  
 (E) Nine

NUMBER OF EMPLOYEES AT COMPANY X

|                         | First Shift | Second Shift |
|-------------------------|-------------|--------------|
| Salary over \$30,000    | 30          | 10           |
| Salary \$30,000 or less | 40          | 20           |

11. The table above shows the number of employees at Company X classified according to work shift and salary. If a second-shift employee will be picked at random, what is the probability that the employee's salary is over \$30,000?

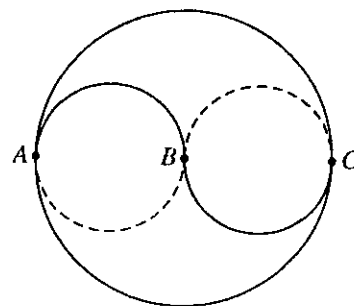
- (A)  $\frac{1}{2}$   
 (B)  $\frac{1}{3}$   
 (C)  $\frac{1}{10}$   
 (D)  $\frac{2}{3}$   
 (E)  $\frac{2}{5}$

GO ON TO THE NEXT PAGE 



12. If  $x$  is a positive integer satisfying  $x^7 = k$  and  $x^9 = m$ , which of the following must be equal to  $x^{11}$ ?

- (A)  $\frac{m^2}{k}$   
 (B)  $m^2 - k$   
 (C)  $m^2 - 7$   
 (D)  $2k - \frac{m}{3}$   
 (E)  $k + 4$



14. In the figure above, the smaller circles each have radius 3. They are tangent to the larger circle at points  $A$  and  $C$ , and are tangent to each other at point  $B$ , which is the center of the larger circle. What is the perimeter of the shaded region?
- (A)  $6\pi$   
 (B)  $8\pi$   
 (C)  $9\pi$   
 (D)  $12\pi$   
 (E)  $15\pi$

13. After the first term in a sequence of positive integers, the ratio of each term to the term immediately preceding it is 2 to 1. What is the ratio of the 8th term in this sequence to the 5th term?

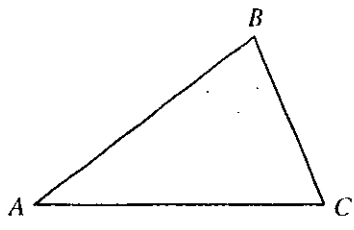
- (A) 6 to 1  
 (B) 8 to 5  
 (C) 8 to 1  
 (D) 64 to 1  
 (E) 256 to 1

GO ON TO THE NEXT PAGE



15. Each of the following inequalities is true for some values of  $x$  EXCEPT

- (A)  $x < x^2 < x^3$
- (B)  $x < x^3 < x^2$
- (C)  $x^2 < x^3 < x$
- (D)  $x^3 < x < x^2$
- (E)  $x^3 < x^2 < x$



Note: Figure not drawn to scale.

16. In the figure above,  $AC = 6$  and  $BC = 3$ . Point  $P$  (not shown) lies on  $\overline{AB}$  between  $A$  and  $B$  such that  $\overline{CP} \perp \overline{AB}$ . Which of the following could be the length of  $\overline{CP}$ ?

- (A) 2
- (B) 4
- (C) 5
- (D) 7
- (E) 8

**STOP**

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



## SECTION 10

Time — 10 minutes

14 Questions

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

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

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

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

## EXAMPLE:

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

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

(A) ● (C) (D) (E)

1. People were unprepared for the sinking of the Titanic simply because of believing that the ship was unsinkable.
  - (A) of believing that the ship was unsinkable
  - (B) of having a belief in the ship as unsinkable
  - (C) they believed that the ship was unsinkable
  - (D) they believed the unsinkable nature of the ship
  - (E) of a belief on their part of an unsinkable ship
2. When the weather forecaster predicts a severe storm, this is when people usually rush to the supermarket to stock up on groceries.
  - (A) storm, this is when people usually rush
  - (B) storm is usually when people are rushing
  - (C) storm is why people usually rush
  - (D) storm, people usually rush
  - (E) storm, it usually rushes people
3. When, after bleak and lonely years in an English public school, he returned to India, there was suddenly perceived by himself a strong desire to write about the people and land he loved.
  - (A) there was suddenly perceived by himself
  - (B) he suddenly was perceived
  - (C) suddenly the feeling that came to him being
  - (D) he suddenly felt
  - (E) suddenly he had the feeling of
4. Curiosity about other people, about the ways they think and act, has caused Jeff to meet some fascinating characters as well as people which also really bore him.
  - (A) people which also really bore him
  - (B) he encountered really boring people
  - (C) very boring people are also met
  - (D) some very boring people
  - (E) very boring people also
5. During seasons when ticks carrying Lyme disease are most prevalent, signs could be posted to deter hikers about their venturing into tick-infested areas.
  - (A) about their venturing
  - (B) from their venturing
  - (C) from venturing
  - (D) by not venturing
  - (E) not to venture



6. After Morris had spent ten minutes giving an answer, Claudette found he had given her only one item of information beyond what she already knew.
- (A) beyond what she already knew  
 (B) beyond what she knows already  
 (C) beyond her knowledge at the current time  
 (D) to add to what she knew already presently  
 (E) in addition to her present knowledge then
7. Although the kings and queens of England are considered Canada's monarchs, true political power lies with the prime minister, that person is elected by the Canadian citizenry.
- (A) true political power lies with the prime minister, that person is elected  
 (B) the person who holds true political power is the prime minister, which is elected  
 (C) true political power lies with the prime minister, who is elected  
 (D) the prime minister, the source of true political power, elected  
 (E) true political power is with the prime minister and is elected
8. Led by vocalist Marlena McGhee Smalls, Gullah tradition is preserved by the help of the Hallelujah Singers of South Carolina through songs and stories.
- (A) Gullah tradition is preserved by the help of the Hallelujah Singers of South Carolina through songs and stories  
 (B) the Hallelujah Singers of South Carolina help to preserve Gullah tradition through songs and stories  
 (C) the songs and stories of Gullah tradition are preserved through the Hallelujah Singers of South Carolina  
 (D) it is the Hallelujah Singers that help to preserve the songs and stories of Gullah tradition in South Carolina  
 (E) South Carolina's Gullah tradition is preserved through songs and stories by the Hallelujah Singers
9. Astronomy is the study of celestial bodies in outer space, especially their positions, dimensions, movements, and composition.
- (A) especially their positions, dimensions, movements, and composition  
 (B) and especially they are concerned with their positions, dimensions, movements, and composition  
 (C) especially studying their positions, dimensions, movements, and composition  
 (D) especially their positions, dimensions, movements, and with their composition  
 (E) with special study of their positions, dimensions, movements, and including composition
10. All the talk about controlling noise, keeping rivers clean, and planting trees have not impressed people enough to be bringing about major changes in laws and lifestyles.
- (A) have not impressed people enough to be bringing  
 (B) have not made enough of an impression on people to bring  
 (C) have not made people impressed enough to bring  
 (D) has not impressed people enough to bring  
 (E) has not made enough people impressed for bringing
11. The furnace exploded, blowing off the door, spraying greasy soot all over the basement floor, and it would rattle furniture and windowpanes throughout the building.
- (A) it would rattle  
 (B) it rattled  
 (C) causing the rattling of  
 (D) the result was to rattle  
 (E) rattling



12. The adaptation of a novel for the screen often requires major adjustments in plot because the one art form differs from the other in having other character-revelation techniques.
- (A) because the one art form differs from the other in having other character-revelation techniques
  - (B) because the two art forms reveal character in different ways
  - (C) because of the differing ways the two may use for revealing a character
  - (D) inasmuch as there are different ways in the two art forms for character revelation
  - (E) insofar as the two differ in how to reveal character
13. The opposing opinions expressed were that the school should be torn down and, on the other hand, to keep it as a historical landmark.
- (A) were that the school should be torn down and, on the other hand, to keep it
  - (B) was that the school should be torn down or kept
  - (C) were that the school should be torn down and that it should be kept
  - (D) were about them tearing the school down and them keeping the school
  - (E) were if they should tear the school down and keeping it
14. Feeling, perhaps, that their votes do not matter, the number of young people going to the polls are becoming increasingly smaller.
- (A) the number of young people going to the polls are becoming increasingly smaller
  - (B) the number of young people going to the polls is increasingly smaller
  - (C) increasingly smaller numbers of young people are going to the polls
  - (D) young people are going to the polls in increasingly smaller numbers
  - (E) young people, who in increasingly smaller numbers are going to the polls

**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 AEOZ, BWOZ

## Critical Reading

| Section 2             |                       | Section 5             |                       | Section 8             |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. |
| 1. A 1                | 13. E 4               | 1. E 1                | 13. A 3               | 1. E 1                | 11. C 3               |
| 2. A 3                | 14. B 3               | 2. C 3                | 14. B 3               | 2. B 2                | 12. C 4               |
| 3. D 4                | 15. C 3               | 3. B 3                | 15. A 2               | 3. C 3                | 13. A 3               |
| 4. C 3                | 16. E 2               | 4. E 5                | 16. B 3               | 4. C 3                | 14. B 5               |
| 5. B 4                | 17. C 1               | 5. C 5                | 17. E 3               | 5. D 4                | 15. A 3               |
| 6. C 5                | 18. D 2               | 6. B 1                | 18. A 1               | 6. A 5                | 16. D 3               |
| 7. B 5                | 19. A 3               | 7. D 2                | 19. E 3               | 7. B 3                | 17. C 3               |
| 8. A 5                | 20. D 5               | 8. B 5                | 20. C 2               | 8. D 2                | 18. C 3               |
| 9. C 2                | 21. B 3               | 9. D 5                | 21. D 3               | 9. E 3                | 19. E 3               |
| 10. B 2               | 22. B 3               | 10. B 3               | 22. E 2               | 10. C 4               |                       |
| 11. E 2               | 23. D 2               | 11. A 3               | 23. C 3               |                       |                       |
| 12. A 4               | 24. A 3               | 12. E 2               |                       |                       |                       |
|                       | 25. B 3               |                       |                       |                       |                       |

Number correct

Number correct

Number correct

Number incorrect

Number incorrect

Number incorrect

## Math

| Section 3   |  |               | Section 6             |                       | Section 9             |                       |
|---|--|---------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Multiple-Choice<br>Questions<br>COR.DIFF.<br>ANS.LEV. | Student-Produced<br>Response Questions<br>COR.<br>ANS. | DIFF.<br>LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. | COR.DIFF.<br>ANS.LEV. |
| 1. B 1  | 9. 89  | 1             | 1. C 1                | 11. E 3               | 1. D 1                | 9. D 3                |
| 2. C 1  | 10. 200  | 2             | 2. E 1                | 12. A 3               | 2. E 1                | 10. A 3               |
| 3. A 1  | 11. 75   | 3             | 3. E 2                | 13. A 3               | 3. A 1                | 11. B 3               |
| 4. D 2  | 12. 3  | 3             | 4. C 2                | 14. E 4               | 4. C 2                | 12. A 4               |
| 5. B 3  | 13. 12   | 3             | 5. C 1                | 15. E 4               | 5. D 2                | 13. C 4               |
| 6. D 4  | 14. $0 < x < 1$  | 3             | 6. D 2                | 16. E 3               | 6. D 3                | 14. D 4               |
| 7. C 4  | 15. 1600   | 3             | 7. A 2                | 17. A 4               | 7. C 3                | 15. C 5               |
| 8. E 4  | 16. $5/8$ or .625                                      | 4             | 8. B 2                | 18. B 4               | 8. E 3                | 16. A 5               |
|   | 17. $1/3$ or .333                                      | 4             | 9. E 2                | 19. E 4               |                       |                       |
|   | 18. $5/2$ or 2.5                                       | 5             | 10. A 3               | 20. C 5               |                       |                       |

Number correct    Number correct  
(9-18)

Number correct

Number correct

Number incorrect

Number incorrect

Number incorrect

## Writing

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

Number correct

Number correct

Number incorrect

Number incorrect

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