

Form Codes AEPV, BWPV, CFPV

# SAT Reasoning Test™

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Question-and-Answer Service  
October 2006 Administration

**INSIDE:**

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

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 **CollegeBoard SAT**  
connect to college success™

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

This booklet contains the SAT Reasoning Test™ you took in October 2006. It also includes the correct answers, the difficulty level for each question, additional essay prompts, and scoring information. If the SAT Reasoning Test you took included an unscored “equating” section, this booklet will not include that section.

### Reviewing Your SAT Results

The QAS report can help you understand your academic strengths and weaknesses. To make the best use of this report, do the following:

- Read each question, focusing on the type of question, the correct answer, how you answered it, and the difficulty level.
- Analyze test questions you answered incorrectly to understand why your answer was incorrect. Check to see whether you misread the question or misgridded the answer.
- Use the table below to keep track of how you did on the different types of questions (as labeled on your QAS report). This can help you decide how best to concentrate your efforts to improve.

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

### Reviewing Your Essay

You can view a copy of your own essay online at [www.collegeboard.com/viewessay](http://www.collegeboard.com/viewessay).

Your essay prompt is included in this booklet. Other essay prompts used on the day you took the test are also included. On the practice sheets in the back of this booklet, you can try writing your essay again, or you can try writing a practice essay for a different prompt.

### Understanding Your Scores

The version of the test, or “Form Code,” is shown at the top of your personalized QAS report. You will need this Form Code to locate your particular score table in the back of this booklet. If you would like to score your own test, use the following resources:

- the guidelines for the readers who scored your essay (page 51)
- a worksheet for calculating raw scores (page 52)
- the conversion table from raw scores to scaled scores (page 53)



## ESSAY

Time — 25 minutes

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

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

### Important Reminders:

- **A pencil is required for the essay.** An essay written in ink will receive a score of zero.
- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**

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

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

While some people promote competition as the only way to achieve success, others emphasize the power of cooperation. Intense rivalry at work or play or engaging in competition involving ideas or skills may indeed drive people either to avoid failure or to achieve important victories. In a complex world, however, cooperation is much more likely to produce significant, lasting accomplishments.

**Assignment:** Do people achieve more success by cooperation than by competition? 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.



## 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.

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

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

Sometimes it is necessary to challenge what people in authority claim to be true. Although some respect for authority is, no doubt, necessary in order for any group or organization to function, questioning the people in charge—even if they are experts or leaders in their fields—makes us better thinkers. It forces all concerned to defend old ideas and decisions and to consider new ones. Sometimes it can even correct old errors in thought and put an end to wrong actions.

**Assignment:** Is it important to question the ideas and decisions of people in positions of authority? 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.

**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.

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- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**

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

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

We don't really learn anything properly until there is a problem, until we make a mistake, until something fails to go as we had hoped. When everything is working well, with no problems or failures, what incentive do we have to try something new? We are only motivated to learn when we experience difficulties.

Adapted from Alain de Botton, *How Proust Can Change Your Life: Not a Novel*

**Assignment:** Does true learning only occur when we experience difficulties? 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.

## ESSAY

Time — 25 minutes

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

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

**Important Reminders:**

- **A pencil is required for the essay.** An essay written in ink will receive a score of zero.
- **Do not write your essay in your test book.** You will receive credit only for what you write on your answer sheet.
- **An off-topic essay will receive a score of zero.**

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

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

There are two kinds of pretending. There is the bad kind, as when a person falsely promises to be your friend. But there is also a good kind, where the pretense eventually turns into the real thing. For example, when you are not feeling particularly friendly, the best thing you can do, very often, is to act in a friendly manner. In a few minutes, you may really be feeling friendlier.

Adapted from a book by C. S. Lewis

**Assignment:** Can deception—pretending that something is true when it is not—sometimes have good results? 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 3

Time — 25 minutes

24 Questions

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

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

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

**Example:**

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

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

(A) (B) (C) (D) ●

- Known for her -----, Miranda eagerly welcomes anyone into her home.  
(A) cowardice (B) prudence (C) hospitality  
(D) aloofness (E) loyalty
- Not surprisingly, supporters of the governor's plan to set aside land for a forest preserve were disappointed when a court decision ----- the plan.  
(A) applauded (B) derailed (C) acknowledged  
(D) permitted (E) anticipated
- Because playing a musical instrument increases brain activity, it is sometimes used as a ----- to promote learning in children.  
(A) condition (B) highlight (C) stimulus  
(D) dictum (E) respite
- The ambassador argues that, in diplomacy, there is a subtle but important difference between a country's showing a willingness to ----- and a too-obvious readiness to make -----.  
(A) negotiate . . concessions  
(B) antagonize . . friends  
(C) surrender . . enemies  
(D) dominate . . inquiries  
(E) equivocate . . denunciations
- The dancer's performing style was ----- and -----, with each move taken from another artist, and poorly executed at that.  
(A) rousing . . memorable  
(B) pedestrian . . evolving  
(C) chaotic . . unprecedented  
(D) derivative . . inept  
(E) spontaneous . . graceless
- Lewis Latimer's inexpensive method of producing carbon filaments ----- the nascent electric industry by making electric lamps commercially -----.  
(A) cheapened . . affordable  
(B) transformed . . viable  
(C) revolutionized . . prohibitive  
(D) provoked . . improbable  
(E) stimulated . . inaccessible
- After winning the award, Phillip adopted a haughty pose, treating even his best friends in a ----- manner.  
(A) cryptic (B) judicious (C) jubilant  
(D) supercilious (E) pugnacious
- The general was so widely suspected of ----- during the war that his name eventually became synonymous with disloyalty.  
(A) belligerence (B) indigence (C) perfidy  
(D) aspersion (E) tenacity



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 9-12 are based on the following passages.

**Passage 1**

Line Foraging near the hut that he built himself, cultivating  
5 beans whose properties invited speculation, gazing into the  
depths of Walden Pond, Henry David Thoreau epitomizes  
a long-standing American worship of nature. Generations  
of teachers have assigned Thoreau's book *Walden* (1854),  
10 which recounts his experiment in living in solitary harmony  
with nature, as an illustration of the intensity with which  
nineteenth-century America protested the intrusion into  
pastoral harmony of the forces of industrialization and  
urbanization. In this sense, *Walden* is revered as a text  
15 of regret, a lament for a world passing out of existence.

**Passage 2**

Although Thoreau, in *Walden*, was sometimes  
ambivalent about the mechanization that he saw around  
him, at other times he was downright enthusiastic, as in  
15 his response to the railroad: "When I hear the iron horse  
make the hills echo with his snort like thunder, shaking  
the earth with his feet, and breathing fire and smoke from  
his nostrils, . . . it seems as if the earth had got a race now  
worthy to inhabit it." At Walden Pond, civilization and  
20 industrialization no longer seemed threatening. Providing  
a full record of Thoreau's purposeful energy, *Walden*  
demonstrates that the power unleashed by the machine  
is not that different from the power required to transform  
the wilderness into a productive garden.

9. The author of Passage 2 and the "teachers" mentioned in line 5, Passage 1, would probably disagree regarding which of the following about *Walden*?
- (A) The extent to which *Walden* presents nature as being threatened
- (B) The extent to which *Walden* successfully recounts Thoreau's experiment in solitary living
- (C) The extent to which *Walden* has been considered an important work of literature
- (D) Whether *Walden* recognizes the spread of industrialization and urbanization
- (E) Whether the power of the machine was a topic central to *Walden*

10. Passage 1 suggests that Thoreau would most likely agree that the "power unleashed by the machine" (line 22, Passage 2) was

- (A) kept in check by comparable forces in nature
- (B) largely destructive of nature's tranquility
- (C) exaggerated by those who did not seek out nature
- (D) necessary to transform nature into something productive
- (E) less threatening to one who lived close to nature

11. The author of Passage 1 would most likely argue that the enthusiasm referred to in line 14, Passage 2, is

- (A) supportive of the idea that *Walden* expresses regret about industrialization
- (B) a response that would have resonated with nineteenth-century Americans
- (C) a characteristic of Thoreau's that is often emphasized by teachers
- (D) an attitude that derives from Thoreau's experiment in solitary living
- (E) atypical of Thoreau's perceived attitude toward mechanization

12. The author of Passage 1 would probably agree with which of the following statements about the interpretation of *Walden* offered in Passage 2?

- (A) It exaggerates the destructive power of the machine.
- (B) It is overly influenced by the long-standing American worship of nature.
- (C) It is not representative of the way *Walden* is often taught in schools.
- (D) It overlooks Thoreau's enthusiasm in *Walden* for the railroad.
- (E) It is more in accord with the way *Walden* was generally understood in Thoreau's time than it is currently.





Questions 13-24 are based on the following passage.

This passage is adapted from a book published in 1994.

As a scientist, I find that only one vision of the city really gets my hackles up—the notion that a city is somehow “unnatural,” a blemish on the face of nature.

The argument goes like this: Cities remove human beings from their natural place in the world. They are a manifestation of the urge to conquer nature rather than to live in harmony with it. Therefore, we should abandon both our cities and our technologies and return to an earlier, happier state of existence, one that presumably would include many fewer human beings than now inhabit our planet.

There is an important hidden assumption behind this attitude, one that needs to be brought out and examined if only because it is so widely held today. This is the assumption that nature, left to itself, will find a state of equilibrium (a “balance of nature”) and that the correct role for humanity is to find a way to fit into that balance. If you think this way, you are likely to feel that all of human history since the Industrial (if not the Agricultural) Revolution represents a wrong turning—a blind alley, something like the failed Soviet experiment in central planning. Cities, and particularly the explosive postwar growth of suburbs (“urban sprawl”), are agencies that destroy the balance of nature, and hence are evil presences on the planet.

What bothers me about this point of view is that it implies that human beings, in some deep sense, are not part of nature. “Nature,” to many environmental thinkers, is what happens when there are no people around. As soon as we show up and start building towns and cities, “nature” stops and something infinitely less worthwhile starts.

It seems to me that we should begin our discussion of cities by recognizing that they aren’t unnatural, any more than beaver dams or anthills are unnatural. Beavers, ants, and human beings are all part of the web of life that exists on our planet. As part of their survival strategy, they alter their environments and build shelters. There is nothing “unnatural” about this.

Nor is there anything unnatural about downtown areas. Yes, in the town the soil has been almost completely covered by concrete, buildings, and asphalt: often there is no grass or undisturbed soil to be seen anywhere. But this isn’t really unnatural. There are plenty of places in nature where there is no soil at all—think of cliffsides in the mountains or along the ocean. From our point of view, the building of Manhattan simply amounted to the exchange of a forest for a cliffside ecosystem.\*

Look at the energy sources of the downtown ecosystem. There is, of course, sunlight to provide warmth. In addition, there is a large amount of human-made detritus that can serve as food for animals: hamburger buns, apple cores,

and partially filled soft drink containers. All of these can and do serve as food sources. Indeed, urban yellow jackets seem to find sugar-rich soft drink cans an excellent source of “nectar” for their honey—just notice them swarming around waste containers during the summer.

A glimpse of downtown, in fact, illustrates that the city can be thought of as a natural system on at least three different levels. At the most obvious level, although we don’t normally think in these terms, a city is an ecosystem, much as a salt marsh or a forest is. A city operates in pretty much the same way as any other ecosystem, with its own peculiar collection of flora and fauna. This way of looking at cities has recently received the ultimate academic accolade—the creation of a subfield of science, called “urban ecology,” devoted to understanding it.

At a somewhat deeper level, a natural ecosystem like a forest is a powerful metaphor to aid in understanding how cities work. Both systems grow and evolve, and both require a larger environment to supply them with materials and to act as a receptacle for waste. Both require energy from outside sources to keep them functioning, and both have a life cycle—birth, maturity, and death.

Finally, our cities are like every other natural system in that, at bottom, they operate according to a few well-defined laws of nature. There is, for example, a limit to how high a tree can grow, set by several factors including the kinds of forces that exist between atoms in wood. There is also a limit to how high a wood (or stone or steel) building can be built—a limit that is influenced by those same interatomic forces.

So let me state this explicitly: *A city is a natural system, and we can study it in the same way we study other natural systems and how they got to be the way they are.*

\* An ecosystem is defined as all plants and animals that live in a place, along with their physical surroundings.

13. In line 1, “vision” most nearly means

- (A) fantasy
- (B) illusion
- (C) prophecy
- (D) conception
- (E) apparition



14. The author would most likely describe the "happier state" (line 9) as a
- satisfactory solution
  - stroke of luck
  - complicated arrangement
  - false supposition
  - bittersweet memory
15. According to the author, those who "think this way" (line 18) view the Industrial Revolution as
- an example of an important human achievement
  - an instance of technology's double-edged potential
  - an era when cities became successfully self-sufficient
  - a time when social distinctions became easier to transcend
  - the beginning of a harmful trend in human history
16. The author would most likely characterize the views of the "thinkers" referred to in line 28 as
- carefully reasoned
  - thought-provoking
  - unintelligible
  - inconclusive
  - erroneous
17. The author compares cities to beaver dams and anthills (lines 33-36) in order to
- explain how some ecological systems work
  - suggest that all three are the products of natural impulses
  - assert that all three are ultimately detrimental to nature
  - point out that different species flourish in different environments
  - call attention to particular obstacles facing cities today
18. The author's attitude toward the "downtown ecosystem" (line 48) is best described as one of
- regret
  - frustration
  - ambivalence
  - unconcern
  - appreciation
19. The three levels discussed in lines 57-81 ("A glimpse . . . forces") serve primarily to
- present several arguments in support of a fundamental claim
  - organize the author's opinions from most to least important
  - illustrate a process of reasoning from initial assertion to ultimate conclusion
  - group hypotheses that address two opposing principles
  - compare alternative theories proposed by the scientific community
20. In line 63, "peculiar" most nearly means
- eccentric
  - abnormal
  - rare
  - distinctive
  - significant
21. The author's attitude toward the "subfield" (line 65) is best characterized as one of
- approval
  - curiosity
  - uncertainty
  - surprise
  - dismay
22. The discussion of the forest ecosystem in lines 67-73 ("At a . . . death") is best characterized as
- a defense
  - a concession
  - a comparison
  - an exception
  - an allusion



23. The discussion of limits in lines 74-81 suggests that
- (A) cities have the ability to change and grow
  - (B) cities are often larger than they need to be
  - (C) cities must be self-regulating in order to survive
  - (D) human efforts to conquer nature tend to backfire
  - (E) natural principles significantly affect human endeavors

24. The final paragraph primarily serves to
- (A) restate the elements of a dilemma
  - (B) summarize the author's evidence
  - (C) heighten an emotional impact
  - (D) suggest a focus for further research
  - (E) emphasize the author's position

**NOTE:** The reading passages in this test are brief excerpts or adaptations of excerpts from the 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.

**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

18 Questions

Turn to Section 4 (page 5) 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

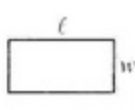
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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

Reference Information

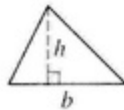


$$A = \pi r^2$$

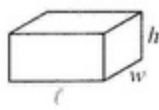
$$C = 2\pi r$$



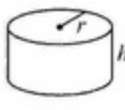
$$A = \ell w$$



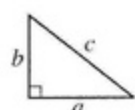
$$A = \frac{1}{2}bh$$



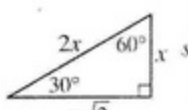
$$V = \ell wh$$



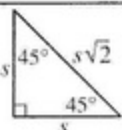
$$V = \pi r^2 h$$



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



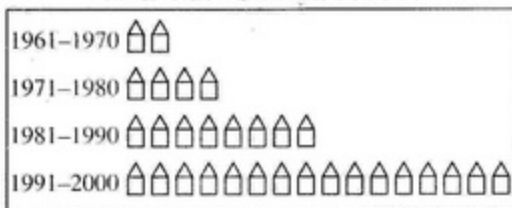
Special Right Triangles



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

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

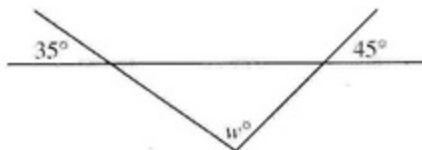
## NEW HOMES IN CITYVILLE



Each represents 2,000 homes.

1. The pictogram above shows the number of new homes built in Cityville for each of four different time periods from 1961 through 2000. How many new homes were built from 1961 through 1990?

- (A) 14  
(B) 30  
(C) 16,000  
(D) 20,000  
(E) 28,000



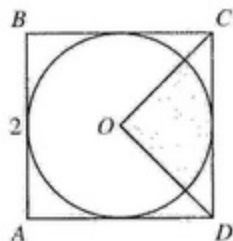
2. What is the value of  $w$  in the figure above?

- (A) 90  
(B) 100  
(C) 110  
(D) 135  
(E) 145

GO ON TO THE NEXT PAGE

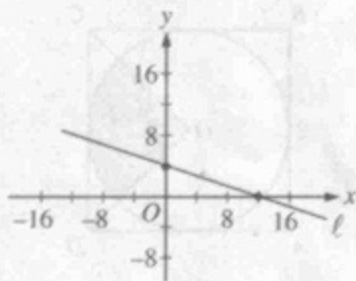
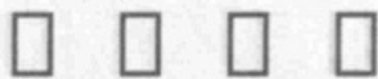


3. A restaurant has 19 tables that can seat a total of 84 people. Some of the tables seat 4 people and the others seat 5 people. How many tables seat 5 people?
- (A) 4  
(B) 5  
(C) 6  
(D) 7  
(E) 8



5. In the figure above, the circle with center  $O$  is inscribed in square  $ABCD$ . What is the area of the shaded portion of the circle?
- (A)  $\frac{\pi}{4}$   
(B)  $\frac{\pi}{2}$   
(C)  $\pi$   
(D)  $\frac{3\pi}{2}$   
(E)  $2\pi$

4. If  $a = 4$ , which of the following is equivalent to  $am^2 + am + a$ ?
- (A)  $4(m^3 + 1)$   
(B)  $4(m + 1)^2$   
(C)  $4(m^2 + m)$   
(D)  $4(m^2 + m + 1)$   
(E)  $4(4m^2 + m + 1)$



6. In the  $xy$ -plane above, the equation of line  $\ell$  is  $x + 3y = 12$ . Which of the following is an equation of a line that is perpendicular to line  $\ell$ ?

- (A)  $y = x + 2$   
 (B)  $y = -3x + 2$   
 (C)  $y = 3x - 6$   
 (D)  $y = \frac{1}{3}x + 6$   
 (E)  $y = -\frac{1}{2}x - 3$

7. Two sides of a triangle each have length 5. All of the following could be the length of the third side EXCEPT

- (A) 1  
 (B) 3  
 (C) 4  
 (D)  $\sqrt{50}$  (approximately 7.07)  
 (E) 10

8. In an election, 2.8 million votes were cast and each vote was for either Candidate I or Candidate II. Candidate I received 28,000 more votes than Candidate II. What percent of the 2.8 million votes were cast for Candidate I?

- (A) 50.05%  
 (B) 50.1%  
 (C) 50.5%  
 (D) 51%  
 (E) 55%

**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
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

← Fraction line

Grid in result. →

Answer: 2.5

	2	.	5
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

← Decimal point

Answer: 201  
Either position is correct.

	2	0	1
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

	2	0	1
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

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

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

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

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

	2	/	3
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

.	6	6	6
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

.	6	6	7
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

9. If  $\sqrt{2p} = \sqrt{18}$ , what is the value of  $p$ ?

10. When 1.783 is rounded to the nearest whole number, the result is how much greater than when 1.783 is rounded to the nearest tenth?

GO ON TO THE NEXT PAGE



11. Samantha is packing for a trip. Of the towels in the closet, 6 are brown. She will randomly pick one of the towels to pack. If the probability is  $\frac{2}{5}$  that the towel she will pick is brown, how many towels are in the closet?
- 
12. Five different points  $A$ ,  $B$ ,  $C$ ,  $D$ , and  $E$  lie on a line in that order. The length of  $\overline{AD}$  is 4.5 and the length of  $\overline{BE}$  is 3.5. If the length of  $\overline{CD}$  is 2, what is one possible value for the length of  $\overline{BC}$ ?
- 
13. In the 30-day month of April, for every three days it rained, there were two days it did not rain. The number of days in April on which it rained was how much greater than the number of days on which it did not rain?
- 
14. Each term of a certain sequence is greater than the term before it. The difference between any two consecutive terms in the sequence is always the same number. If the third and sixth terms of the sequence are 17 and 77, respectively, what is the eighth term?



GO ON TO THE NEXT PAGE





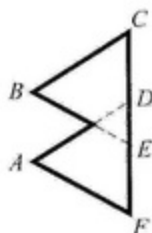
$$|x - 3| = \frac{1}{2}$$

15. What is the least value of  $x$  that satisfies the equation above?

16. A four-digit integer,  $WXYZ$ , in which  $W$ ,  $X$ ,  $Y$ , and  $Z$  each represent a different digit, is formed according to the following rules.

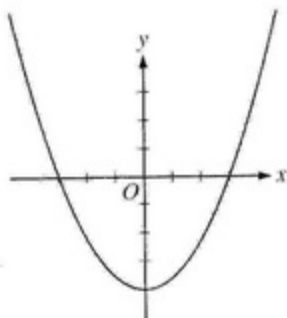
1.  $X = W + Y + Z$
2.  $W = Y + 1$
3.  $Z = W - 5$

What is the four-digit integer?



Note: Figure not drawn to scale.

17. The flag shown above is made of overlapping equilateral triangles  $ADF$  and  $BCE$ . Because ribbon is to be sewn around the entire outer edge, it is necessary to know the perimeter of the flag. If  $\overline{CD}$ ,  $\overline{DE}$ , and  $\overline{EF}$  each have length 10 inches, what is the length, in inches, of the perimeter shown in bold?



18. The graph above shows the function  $g$ , where  $g(x) = k(x + 3)(x - 3)$  for some constant  $k$ . If  $g(a - 1.2) = 0$  and  $a > 0$ , what is the value of  $a$ ?

**STOP**

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



## SECTION 5

Time — 25 minutes

35 Questions

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

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

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

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

## EXAMPLE:

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

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

A  B  C  D  E

1. A recent report indicates that sleep-deprived drivers caused more than 100,000 accidents last year, they fall asleep at the wheel.
- (A) year, they fall  
(B) year, and they fall  
(C) year by falling  
(D) year and falling  
(E) year, they were falling
2. The depths of the Arctic Ocean are hard to study, mainly because the icy surface is being difficult to penetrate using current techniques.
- (A) to study, mainly because the icy surface is being  
(B) to study as a result of the icy surface, mainly, is  
(C) to study, mainly because the icy surface is  
(D) studying, mainly from the icy surface being  
(E) studying, mainly resulting from the icy surface being
3. Several of the forest fires that occurred last summer which were because people are careless.
- (A) which were because people are careless  
(B) were caused by human carelessness  
(C) because people are careless  
(D) are because of human carelessness  
(E) happened from people being careless
4. Dr. Chien-Shiung Wu has disproved a widely accepted theory of physics when she showed that identical nuclear particles do not always act alike.
- (A) has disproved  
(B) having disproved  
(C) disproved  
(D) disproves  
(E) disproving
5. We generally think of Canada as the northern neighbor of the United States, and more than half of the states extend farther north than Canada's southernmost point.
- (A) States, and more than half of the states extend  
(B) States, and it is the case that more than half of the states extend  
(C) States, but more than half of the states extending  
(D) States, whereas more than half of the states are extending  
(E) States; however, more than half of the states extend



6. The three volumes of memoirs by Wole Soyinka begin with his childhood in a Nigerian village and culminate with his years at the University of Ibadan, one of the best universities in West Africa.
- (A) begin with his childhood in a Nigerian village and culminate  
 (B) that begin with his childhood in a Nigerian village and culminate  
 (C) have begun with his childhood in a Nigerian village and culminating  
 (D) beginning with his childhood in a Nigerian village and culminating  
 (E) are begun as a child in a Nigerian village and culminate
7. Dressed in a crisp, clean uniform, it reflected the efficient manner of the tour guide as she distributed maps for a walking tour of central Canberra.
- (A) Dressed in a crisp, clean uniform, it reflected the efficient manner of the tour guide  
 (B) Dressed in a crisp, clean uniform, the efficient manner of the tour guide was reflected  
 (C) Dressed in a crisp, clean uniform that reflected the efficient manner of the tour guide  
 (D) The crisp, clean uniform of the tour guide reflected her efficient manner  
 (E) The crisp, clean uniform of the tour guide, a reflection of her efficient manner
8. A cure for some kinds of cancer, scientists believe, may be found within the next decade.
- (A) scientists believe, may be  
 (B) scientists believe they may be  
 (C) being maybe, in the belief of some scientists,  
 (D) there are some scientists who believe it may be  
 (E) which, some scientists believe, may be
9. A review of the composer's new symphony called it confusing because of its unusual structure, and its melodious final movement makes it elegant.
- (A) structure, and its melodious final movement makes it elegant  
 (B) structure, although elegant by having its melodious final movement  
 (C) structure, and it is elegant with its melodious final movement  
 (D) structure while having a melodious final movement that made it elegant  
 (E) structure but elegant because of its melodious final movement
10. By building new windmill farms, consumption of fossil fuels are reduced, and tons of carbon dioxide emissions are kept out of the atmosphere.
- (A) By building new windmill farms, consumption of fossil fuels are reduced, and tons of carbon dioxide emissions are kept  
 (B) By building new windmill farms, it reduces consumption of fossil fuels, and tons of carbon dioxide emissions are kept  
 (C) Building new windmill farms reduces fossil fuel consumption and keeps tons of carbon dioxide emissions  
 (D) When new windmill farms are built, they reduce fossil fuel consumption, and it keeps tons of carbon dioxide emissions  
 (E) New windmill farms, when built, reduce fossil fuel consumption, and also tons of carbon dioxide emissions are kept
11. The famous battle depicted in the film *Braveheart* took place in northern England, and many people assume that it was the Scottish Highlands.
- (A) and many people assume that it was  
 (B) many people assuming  
 (C) but many people assume it to be  
 (D) not what many people assume  
 (E) not, as many people assume, in



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

## EXAMPLE:

The other delegates and him immediately

A B C

accepted the resolution drafted by the

D

neutral states. No error

E

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

12. Interested in studying insects and their effects  
A  
on agriculture, Larissa and Tariq plan to become  
B  
an entomologist and then return to help the  
C D  
farmers in their small town. No error  
E
13. From about A.D. 700 to 1600, sculptors created  
A B  
nearly 1,000 colossal rock statues on  
C  
the remote and tiny Easter Island. No error  
D E
14. Because our casserole was smelling surprisingly badly  
A  
as it baked, the food science teacher came over to ask  
us what we had put in it. No error  
B C D E

15. Jerome often referred to art history textbooks  
A  
while he was sculpting; whenever he learned  
B  
a new method in art class, he seeks out the work  
C  
of sculptors who had used it in the past. No error  
D E
16. As he eagerly awaited the interview for the job,  
A B  
Miguel thought it wise suppressing his nervousness  
C D  
and to display a calm he did not feel. No error  
E
17. According to educational statistics, the average  
A  
age of college students has risen quite noticeable  
B C  
over the past 25 years. No error  
D E
18. Neither the koala bear or the red panda belongs to the  
A B  
bear family; the koala is a marsupial, and the red panda  
is thought to be related to the raccoon. No error  
C D E
19. Before boarding, passengers must purchase  
A B  
his or her tickets in the main concourse of  
C  
the bus terminal because tickets are not sold  
D  
on the bus. No error  
E



20. According to some demographers, the number of  
A  
United States citizens aged 65 or older is likely  
B C  
to rise to 87 million by 2050. No error  
D E
21. When they were asked to compare Norman  
A  
Rockwell's paintings to painter Robert Rauschenberg,  
B  
the students entered into a prolonged discussion  
C D  
about the representation of reality in art. No error  
E
22. Contrary to what many people believe, heat lightning  
A  
is not lightning caused by heat; it is ordinary lightning  
B  
that occurs at too great a distance for its accompanying  
C  
thunder to be audible. No error  
D E
23. The grooved and barbed spears of the box jellyfish,  
each trailed by a poison thread, is released when  
A B C D  
the animal is threatened. No error  
E
24. The derelict old house across from the warehouses  
A  
and the even more decrepit one just beside them  
B C  
have been placed on the list of historic landmarks.  
D  
No error  
E
25. As their brains mature neurologically, infants  
A B  
become more capable to distinguish the shapes and  
C  
textures of the objects around them. No error  
D E
26. Home of the world's largest chocolate-manufacturing  
A  
plant, Hershey, Pennsylvania, was originally known as  
B  
Derry Church, but its name was changed in 1906  
to honor one of their most famous residents.  
C D  
No error  
E
27. The valuable stringed instruments in this display,  
A  
all more than 300 years old, were carefully crafted  
B  
by artisans famous in their day but long since  
C D  
forgotten. No error  
E
28. The regularly scheduled conference between my tutor  
A  
and me is set for Friday, but my low grades in  
B C  
chemistry requires me to arrange an earlier meeting.  
D  
No error  
E
29. There is probably no story more dramatic  
A B C  
than baseball's great hitter and right fielder,  
D  
Hank Aaron. No error  
E



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

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

**Questions 30-35 refer to the following passage.**

(1) A castle is not the same thing as a palace, though some people use the terms "castle" and "palace" interchangeably. (2) Castles are fortified dwellings, built by feudal lords of the Middle Ages. (3) Their stone walls, moats, iron gates, and drawbridges were designed to ward off marauding plunderers and hostile armies. (4) Small windows in castle walls allowed archers to shoot at intruders from positions of comparative safety. (5) But even welcomed guests would have found castles less than inviting. (6) In royal palaces there were to be found many comforts that medieval castles did not offer. (7) These had dark dungeons and damp, drafty living quarters instead.

(8) Though castles were made obsolete by the invention of the cannon in the fourteenth century, many survive to the present day as fascinating relics of a bygone era. (9) These structures, which were designed to keep people at a distance, now attract visitors from all over the world. (10) There are scores of medieval castles located throughout Europe. (11) Some, like Eilean Donan Castle and the Château de Chambonneau, are well-maintained tourist attractions. (12) In one Welsh village, the decaying remnants of a castle sit beside cozy brick houses on an ordinary street.

30. Of the following, which would most improve the first paragraph (sentences 1-7)?

- (A) Providing a brief summary of medieval history
- (B) Tracing the origin of the word "castle"
- (C) Explaining more fully what a palace is
- (D) Placing sentence 7 immediately after sentence 1
- (E) Deleting sentence 3

31. Which of the following sentences, if inserted immediately after sentence 3, would most effectively link sentences 3 and 4?

- (A) These walls were built by laborers known as "serfs."
- (B) Drawbridges had been in use since ancient times.
- (C) Those who defied such obstacles did so at their peril.
- (D) Under feudalism, all land was considered property of the king.
- (E) Still, not all visitors came with hostile intentions.

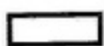
32. In context, which of the following is the best way to combine sentences 6 and 7 (reproduced below)?

*In royal palaces there were to be found many comforts that medieval castles did not offer. These had dark dungeons and damp, drafty living quarters instead.*

- (A) Because medieval castles had dark dungeons and damp, drafty living quarters, royal palaces offered many more comforts than could be found there.
- (B) Lacking many comforts compared to royal palaces, medieval castles instead offered dark dungeons and damp, drafty living quarters.
- (C) While medieval castles offered only dark dungeons and damp, drafty living quarters, many comforts were to be found in royal palaces.
- (D) Unlike medieval castles, royal palaces offered many comforts not found in dark dungeons and damp, drafty living quarters.
- (E) With their dark dungeons and damp, drafty living quarters, medieval castles offered few of the comforts to be found in royal palaces.

33. Which of the following would most appropriately be inserted at the beginning of sentence 9?

- (A) Actually,
- (B) Basically,
- (C) Ironically,
- (D) By contrast,
- (E) In retrospect,



34. Which of the following sentences would best be inserted between sentences 11 and 12 ?
- (A) But not all castles can be considered obsolete.
  - (B) Elsewhere, the environment may be a factor.
  - (C) However, many travelers prefer to avoid such "tourist traps."
  - (D) Others crumble away in relative obscurity.
  - (E) Besides, appearances are often misleading.
35. Which of the following sentences would most effectively be placed after sentence 12 ?
- (A) In the final analysis, palaces are actually little more than luxurious castles.
  - (B) There, medieval austerity stands in bold relief against a background of modern comfort.
  - (C) The decline of the castle's importance as an architectural form coincided with the transformation of medieval society.
  - (D) In the United States, imposing structures like Hearst's Castle are not really castles in the strictest sense of the word.
  - (E) Eilean Donan Castle was named for a 7th-century saint who lived as a hermit in the Scottish Highlands.

**STOP**

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

**SECTION 6**

Time — 25 minutes

24 Questions

**Turn to Section 6 (page 6) of your answer sheet to answer the questions in this section.****Directions:** For each question in this section, select the best answer from among the choices given and fill in the corresponding circle on the answer sheet.

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

**Example:**

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

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

(A) (B) (C) (D) ●

1. Aleksandr Solzhenitsyn's ----- proved keenest when he accurately predicted that his books would someday appear in his native Russia.  
(A) foresight (B) nostalgia (C) folly  
(D) despair (E) artistry
2. The simple and direct images in Dorothea Lange's photographs provide ----- reflection of a bygone social milieu.  
(A) an intricate (B) a candid  
(C) an ostentatious (D) a fictional  
(E) a convoluted
3. Kate's impulsive nature and sudden whims led her friends to label her -----.  
(A) capricious (B) bombastic (C) loquacious  
(D) dispassionate (E) decorous
4. Neurosurgeon Alexa Canady maintained that choosing a career was a visceral decision rather than ----- judgment; that is, it was not so much rational as -----.  
(A) an emotional . . . intellectual  
(B) a chance . . . random  
(C) an intuitive . . . impulsive  
(D) a deliberate . . . instinctive  
(E) an intentional . . . logical
5. Creative business stratagems frequently become ----- as a result of -----, their versatility and adaptability destroyed by their transformation into rigid policies.  
(A) streamlined . . . infighting  
(B) mitigated . . . jingoism  
(C) ossified . . . bureaucratization  
(D) politicized . . . innovation  
(E) venerable . . . legislation





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.

Line Whistling and moaning, a 50-mile-an-hour wind  
whipped among the telescope domes atop Kitt Peak. A few  
feet below, turning gray in the dusk, slid a river of clouds  
5 that had been rising and dropping all day. High above,  
comet Hale-Bopp hung like a feathery fishing lure, its tail  
curving off a bit, as if blown to the side by the punishing  
wind. One by one, stars winked on in a darkening sky.  
Nearby, wild horses wandered past. They never glanced  
skyward at the gossamer swath of Hale-Bopp nor at the  
10 wondrous spectacle that is the night sky on a clear night,  
comet or no.

It felt good to be human.

6. In line 12, the author implies that being "human" includes
- (A) making occasional mistakes
  - (B) enjoying the company of others
  - (C) reflecting on past experiences
  - (D) appreciating nature's beauty
  - (E) seeking joy through simplicity
7. The rhetorical device primarily featured in this passage is
- (A) appeal to emotion
  - (B) metaphorical language
  - (C) extended analogy
  - (D) flashback
  - (E) irony

Questions 8-9 are based on the following passage.

Line In 1843 Augusta Ada King published an influential  
set of notes describing Charles Babbage's conception of  
an "analytical engine"—the first design for an automatic  
5 computer. King's notes, which included her program for  
computing a series of figures called Bernoulli numbers,  
established her importance in computer science. However,  
her fascinating life and lineage (she was the daughter of  
the flamboyant poet Lord Byron)—and her role as a  
female pioneer in her field—have turned her into an  
10 icon. She has inspired biographies, plays, novels, and  
even a feature film. And whereas many women have  
helped to advance computer science, only King has  
had a computer language named after her: Ada.

8. The passage is primarily concerned with
- (A) explaining Augusta Ada King's interest in computer science
  - (B) providing a character analysis of Augusta Ada King
  - (C) summarizing how and why Augusta Ada King is celebrated
  - (D) tracing the development of the modern-day computer
  - (E) encouraging more women to pursue careers in computer science
9. The author of the passage would most likely disagree with which of the following statements about Augusta Ada King?
- (A) Her family history plays no part in the fascination she arouses.
  - (B) Her contributions to computer science were markedly original.
  - (C) Interest in her has spread throughout popular culture.
  - (D) She was well known in the field of computer science long after she had completed her work.
  - (E) Her life was remarkable even apart from her contributions to computer science.



Questions 10-15 are based on the following passage.

The following passage is adapted from a 1999 memoir. The author, the son of a Black American woman and a Congolese man, has lived in both the United States and Africa: he was raised in Boston, Massachusetts, and Dar es Salaam, Tanzania. Here, he offers his views on the historical relationship between Black Americans and Black Africans.

A Kikongo proverb states, "A tree cannot stand without its roots." It seems such obvious wisdom now, a well-worn cliché in our era in which everything truly insightful has already been said. But all clichés derive their endurance from their truth, and my ancestors who coined this adage were sending a clear and powerful message to their descendants: a people cannot flourish without their life-giving foundations in the past. The ties between those who came before and those who live now must be maintained and nurtured if a people is to survive. It's a truth that my grandmother understood when she made a point of directing me to "tell the others" about her. And it's a truth that has been well recognized by successive generations of Black people in America. Another Kikongo proverb reminds us that "one can only steal a sleeping baby: once awake, she will look for her parents." This is a maxim that conveys the seemingly instinctive pull of one's heritage, our inborn curiosity in our origins, the quest we all share for self-identification and self-knowledge.

Black Americans have managed to sustain links with the continent of their origin, against tremendous odds. Through ingenuity and dogged determination, in calculated symbolism and unwitting remembrance, for over 300 years Black Americans have kept various ties to Africa intact. The bond has frayed and stretched, it has become twisted and contorted, but through it all, it has not been broken. And for as long as Black people in America have reached back to Africa to offer and receive reassurance, reaffirmation, fraternity, and strength, Africans have reached to Black people in the Americas, "those who were taken," for the same reasons.

We have sought to understand each other ever since we were separated so long ago. For centuries, we have gazed at one another across the transatlantic divide like a child seeing itself in the mirror for the first time. And, unable for so long to reach behind the glass and touch the strangely familiar face we saw staring back, we filled in all that we did not know with all that we could imagine.

When we finally met, in Africa and America, we were sometimes disappointed. Shadowy imaginings do not usually hold up in the light of real experience. We

wondered if we hadn't been mistaken, if the kinship we could feel more than describe was really there, if the roots that had once bound us together had not already withered and died. But time and again we were reminded of what we shared. Africa has left her mark on all of us. And when we have reached out to one another through literature, politics, music, and religion, whenever we've made contact, the world has been forced to take note.

10. The primary purpose of this passage is to

- (A) show the impact Black Americans have had on African societies
- (B) discuss Africans' efforts to embrace American culture
- (C) point out the ambivalent feelings one community has for another
- (D) emphasize the significance of an ongoing relationship
- (E) examine the cultural ties between two nations

11. The "message" (line 6) is best characterized as

- (A) veiled criticism
- (B) cautionary advice
- (C) a questionable proposition
- (D) a nostalgic recollection
- (E) an optimistic prediction

12. The proverb in lines 15-16 primarily serves to

- (A) offer insight into young children's behavior
- (B) emphasize the vulnerability of children
- (C) show people's inherent interest in their history
- (D) demonstrate the complexity of familial relations
- (E) warn those who seek to undermine the family

13. In context, "Shadowy" (line 41) primarily serves to suggest something

- (A) gloomy
- (B) secret
- (C) sinister
- (D) concealed
- (E) unsubstantiated



14. In lines 42-50 ("We wondered . . . note"), there is a shift in feeling from

- (A) fear to courage
- (B) anger to forgiveness
- (C) uncertainty to despair
- (D) regret to determination
- (E) doubt to pride

15. The author primarily makes use of which of the following to convey his point?

- (A) Hypothetical scenarios
- (B) Broad generalizations
- (C) Historical facts
- (D) Personal anecdotes
- (E) Scholarly analyses



Questions 16-24 are based on the following passages.

The following passages, adapted from books published in 1992 and 2001, respectively, discuss a famous painting by Renaissance artist Leonardo da Vinci (1452-1519).

**Passage 1**

It hung in Napoleon's bedroom until moving to the Louvre in 1804. It caused traffic jams in New York for seven weeks as 1.6 million people jostled to see it. In Tokyo viewers were allowed ten seconds each. The object of all this attention was the world's most famous portrait, the *Mona Lisa*.

Historically, its subject was nobody special, probably the wife of a Florentine merchant named Giocondo. But her portrait set the standard for High Renaissance paintings in many important ways. The use of perspective, which creates the illusion of depth behind *Mona Lisa*'s head, and triangular composition established the importance of geometry in painting. It diverged from the stiff, profile portraits that had been the norm by displaying the subject in a relaxed, natural, three-quarter pose.

One of the first easel paintings intended to be framed and hung on a wall, the *Mona Lisa* fully realized the potential of the new oil medium. Instead of proceeding from outlined figures, as painters did before, Leonardo modeled features through light and shadow. Starting with dark undertones, he built the illusion of three-dimensional features through layers and layers of thin, transparent glazes. This technique rendered the whole, as Leonardo said, "without lines or borders, in the manner of smoke." His colors ranged from light to dark in a continuous gradation of subtle tones, without crisp separating edges. The forms seemed to emerge from, and melt into, shadows.

And then there's that famous smile . . .

**Passage 2**

Why is the *Mona Lisa* the best-known painting in the entire world? A small glimpse at even some of its subject's features—her eyes, or perhaps just her hands—brings instant recognition even to those who have no taste or passion for painting. Art historians, poets, and admirers have tried to explain the commanding place that the *Mona Lisa* has in our cultural life with reference to qualities intrinsic to the work. There is something, they argue, *inside* the painting that speaks to us all, that unleashes feelings, emotion, and recognition. This idea originated at the beginning of the nineteenth century, though it had precedents. It is still the position of many art critics.

Art historian Kenneth Clarke, for example, writing in 1973, could not accept that the *Mona Lisa* was famous for reasons other than its inner qualities. There are millions of people, he explained, who know the name of only one

picture—the *Mona Lisa*. This, he argues, is not simply due to an accident of accumulated publicity. It means that this strange image strikes at the subconscious with a force that is extremely rare in an individual work of art.

Clarke's conception of art history is now regarded as somewhat old-fashioned. This is not the case with the "postmodern" Paul Barolsky, who in 1994, seeking to explain what it is about the *Mona Lisa* that "holds us in thrall," pointed to Leonardo's remarkable technique, which creates a sense of texture and depth. The painter, he added, rendered the "inwardness of the sitter, the sense . . . of her mind or soul."

I think one should avoid succumbing to the charm of a myth, to the idea that inside every masterpiece that has remained alive for centuries something imponderable speaks to us. It is of course intensely pleasurable to imagine that, as we face the products of Leonardo, Raphael, and other great artists of bygone ages, armed with nothing but our "innate" sensibility, a mysterious yet almost palpable contact is established. But like most historians, I start with the assumption that the renown of a masterpiece rests on a sequence of events and historical agencies (people, institutions, processes) working in a largely unplanned manner for different ends. Such forces have turned the *Mona Lisa* into the best-known painting in the world. Whether the *Mona Lisa* "deserves" this position is a judgment I happily leave to the reader.

16. Both passages call attention to which aspect of the *Mona Lisa*?

- (A) Its subject's mysterious smile
- (B) Its subject's identity
- (C) Its popular appeal
- (D) Its influence on artists
- (E) Its deteriorating condition

17. The author of Passage 2 would most likely regard the phenomena described in lines 1-6 in Passage 1 ("It hung . . . *Mona Lisa*") as

- (A) circumstances that may themselves have contributed to the renown of the *Mona Lisa*
- (B) occurrences that fundamentally distort the true importance of the *Mona Lisa*
- (C) incidents that cause art enthusiasts undue annoyance
- (D) events that are not worthy of the consideration of art critics
- (E) facts that have proved inconvenient for many art historians



18. The observations in lines 7-10 ("Historically . . . ways") establish a contrast between a woman's
- (A) unremarkable appearance and her portrait's astonishing beauty
  - (B) humble origins and her portrait's monetary value
  - (C) untimely demise and her portrait's immortality
  - (D) lack of charisma and her portrait's universal allure
  - (E) ordinary status and her portrait's aesthetic significance
19. The quotation from Leonardo in lines 24-25 primarily serves to
- (A) defend a methodology
  - (B) characterize an effect
  - (C) criticize a technique
  - (D) downplay an accomplishment
  - (E) acknowledge an influence
20. Which of Mona Lisa's features would the author of Passage 1 most likely add to those mentioned in Passage 2, line 32?
- (A) Her mouth
  - (B) Her hair
  - (C) Her nose
  - (D) Her chin
  - (E) Her profile
21. In line 41, "position" most nearly means
- (A) rank
  - (B) role
  - (C) policy
  - (D) view
  - (E) location
22. Both the author of Passage 1 and Paul Barolsky (line 53, Passage 2) make which of the following points about the *Mona Lisa*?
- (A) It tends to elicit idiosyncratic responses from viewers.
  - (B) It is unduly revered by much of the general public.
  - (C) It has influenced many generations of artists.
  - (D) It was the first oil painting intended to be framed and hung.
  - (E) It gives the appearance of having three dimensions.
23. The author of Passage 2 uses quotation marks in line 65 primarily to
- (A) label a revolutionary movement
  - (B) refer to an overused technique in art
  - (C) emphasize the symbolic meaning of a term
  - (D) highlight the importance of a finding
  - (E) imply skepticism about a theory
24. Which statement best characterizes the different ways in which the authors of Passage 1 and Passage 2 approach the *Mona Lisa*?
- (A) The first stresses the unique smile in the portrait, while the second focuses on other mysterious qualities of its subject.
  - (B) The first emphasizes its striking appearance, while the second examines the background of its creator.
  - (C) The first focuses on its stylistic innovations, while the second seeks to account for its cultural preeminence.
  - (D) The first speculates about the life of its subject, while the second argues that historical interpretations are irrelevant.
  - (E) The first alludes to its societal importance, while the second debates its artistic merits.

**STOP**

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

## SECTION 7

Time — 25 minutes

20 Questions

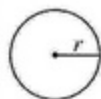
Turn to Section 7 (page 6) of your answer sheet to answer the questions in this section.

**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

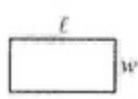
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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



$$A = \pi r^2$$

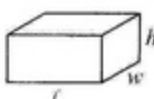
$$C = 2\pi r$$



$$A = \ell w$$



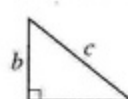
$$A = \frac{1}{2}bh$$



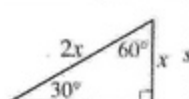
$$V = \ell wh$$



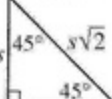
$$V = \pi r^2 h$$



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



Special Right Triangles



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

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

1. If  $x = 4$ , which of the following is greatest in value?

- (A)  $(x + 1)(x + 2)$   
 (B)  $(x + 1)(x - 1)$   
 (C)  $(x - 2)(x + 2)$   
 (D)  $(x - 2)(x + 1)$   
 (E)  $(x - 4)(x + 4)$

2. Trains  $A$ ,  $B$ , and  $C$  passed through a station at different speeds. Train  $A$ 's speed was 3 times Train  $B$ 's speed, and Train  $C$ 's speed was twice Train  $A$ 's. What was Train  $C$ 's speed, in miles per hour, if Train  $B$ 's speed was 7 miles per hour?

- (A) 14  
 (B) 21  
 (C) 28  
 (D) 35  
 (E) 42

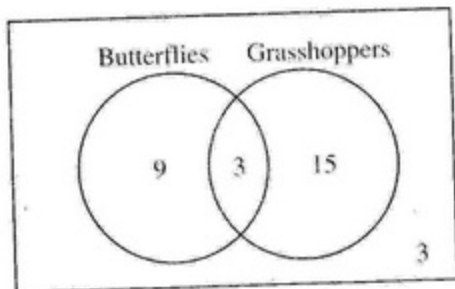
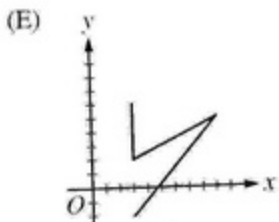
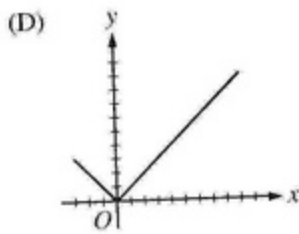
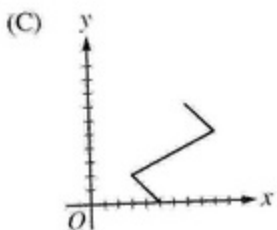
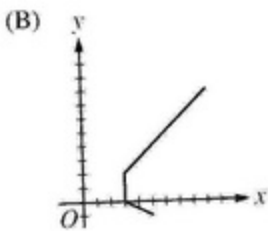
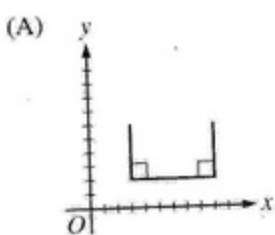
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3. If the average (arithmetic mean) of  $x$ ,  $5x$ , and  $6x$  is 8, what is the value of  $x$ ?

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

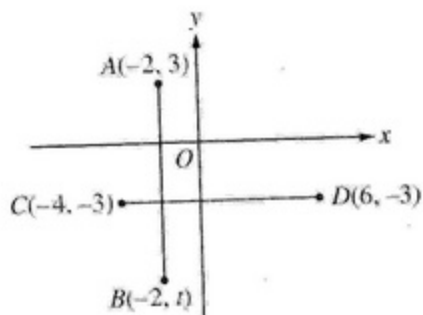
No two points on the graph  
have the same  $x$ -coordinate.

4. Which of the following graphs has the property stated above?



5. The Venn diagram above shows the distribution of 30 science students who studied butterflies, grasshoppers, both, or neither. What percent of the students studied butterflies only?

(A) 10%  
(B) 20%  
(C) 30%  
(D) 40%  
(E) 50%



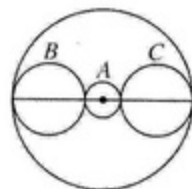
6. In the figure above,  $AB = CD$ . What is the value of  $t$ ?

(A) 2  
(B) -2  
(C) -7  
(D) -10  
(E) -12

GO ON TO THE NEXT PAGE

7. If  $3x^2 = 4y = 12$ , what is the value of  $x^2y$ ?

- (A) 48  
(B) 36  
(C) 24  
(D) 12  
(E) 6



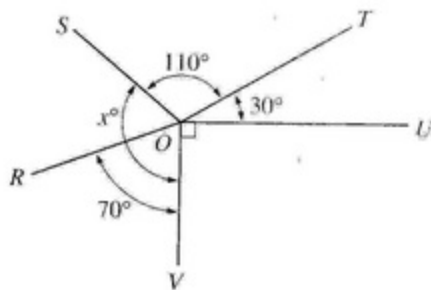
8. In the figure above, the circles are tangent as shown and the center of circle  $A$  is also the center of the largest circle. If the radius of circle  $A$  is 2, the radius of circle  $B$  is 4, and the radius of circle  $C$  is 4, what is the radius of the largest circle?

- (A) 4  
(B) 5  
(C) 6  
(D) 10  
(E) 20



9. In the figure above, tick marks are equally spaced on the number line. What is the value of  $x$ ?

- (A) 4  
(B) 6  
(C) 16  
(D) 18  
(E) 22



10. In the figure above, what is the value of  $x$ ?

- (A) 110  
(B) 120  
(C) 130  
(D) 140  
(E) 150

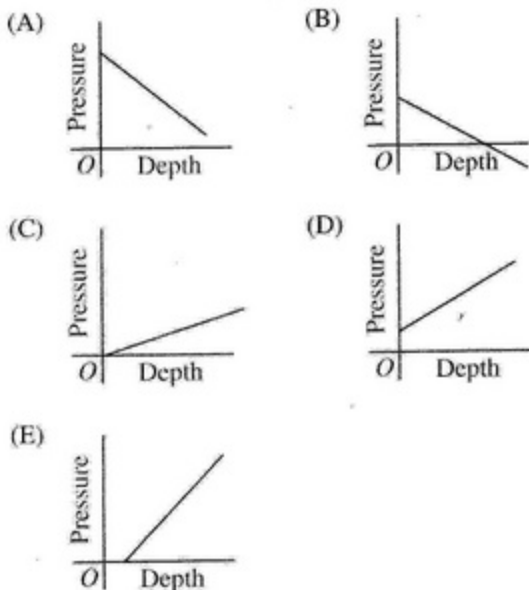
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11. When the positive integer  $k$  is divided by 7, the remainder is 6. What is the remainder when  $k + 2$  is divided by 7?
- (A) 0  
(B) 1  
(C) 2  
(D) 3  
(E) 4

Depth (in feet)	Pressure (in psi)
0	14.7
15	21.375
30	28.05
45	34.725

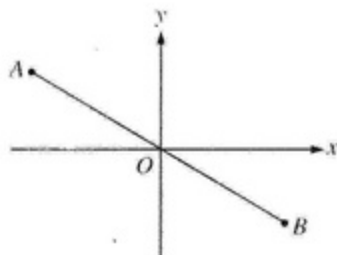
12. The chart above shows the pressure as a function of the depth for every 15 feet of descent into the ocean. If the pressure increases at a constant rate for every foot of descent, which of the following graphs describes the given data?



13. The first term of a sequence of numbers is 1. If each term after the first is the product of  $-2$  and the preceding term, what is the sixth term of the sequence?
- (A) 64  
(B) 32  
(C) 16  
(D)  $-16$   
(E)  $-32$

14. If  $(2x - 5)(2x + 5) = 5$ , what is the value of  $4x^2$ ?
- (A)  $-30$   
(B)  $-20$   
(C) 10  
(D) 20  
(E) 30

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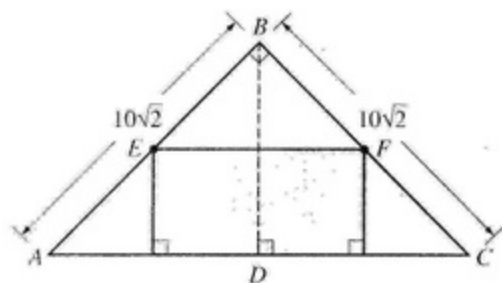


15. The coordinates of point  $A$  in the figure above are  $(p, r)$ , where  $|p| > |r|$ . Which of the following could be the slope of  $\overline{AB}$ ?

(A)  $-2$   
 (B)  $-\frac{1}{2}$   
 (C)  $0$   
 (D)  $\frac{2}{3}$   
 (E)  $\frac{5}{2}$

16. If  $3a + 4b = b$ , which of the following must equal  $6a + 6b$ ?

(A)  $0$   
 (B)  $12$   
 (C)  $2b$   
 (D)  $12b$   
 (E)  $6b - 8$



17. In right triangle  $ABC$  above,  $\overline{EF} \parallel \overline{AC}$ , and  $F$  is the midpoint of  $\overline{BC}$ . What is the area of the shaded rectangular region?

(A)  $25$   
 (B)  $25\sqrt{2}$   
 (C)  $50$   
 (D)  $50\sqrt{2}$   
 (E)  $100$

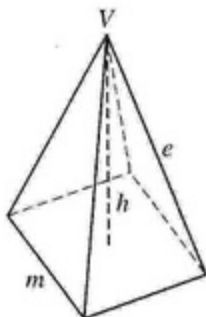
$x$	$-1$	$0$	$1$
$f(x)$	$\frac{1}{8}$	$\frac{1}{2}$	$2$

18. The table above shows some values for the function  $f$ .

If  $f(x) = ka^x$  for some constants  $k$  and  $a$ , what is the value of  $a$ ?

(A)  $\frac{1}{2}$   
 (B)  $\frac{1}{4}$   
 (C)  $2$   
 (D)  $4$   
 (E)  $16$

GO ON TO THE NEXT PAGE



Note: Figure not drawn to scale.

19. The pyramid shown above has altitude  $h$  and a square base of side  $m$ . The four edges that meet at  $V$ , the vertex of the pyramid, each have length  $e$ . If  $e = m$ , what is the value of  $h$  in terms of  $m$ ?

- (A)  $\frac{m}{\sqrt{2}}$   
 (B)  $\frac{m\sqrt{3}}{2}$   
 (C)  $m$   
 (D)  $\frac{2m}{\sqrt{3}}$   
 (E)  $m\sqrt{2}$

20. A salesperson's commission is  $k$  percent of the selling price of a car. Which of the following represents the commission, in dollars, on 2 cars that sold for \$14,000 each?

- (A)  $280k$   
 (B)  $7,000k$   
 (C)  $28,000k$   
 (D)  $\frac{14,000}{100 + 2k}$   
 (E)  $\frac{28,000 + k}{100}$

**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) ●

- The prose of Richard Wright's autobiographical *Black Boy* (1945) is -----, free of stylistic tricks or evasiveness.  
(A) imprecise (B) straightforward (C) deficient  
(D) obtrusive (E) elliptical
- It seemed from the size of the crowd, which was -----, and the resonance of its cheers, which were -----, that the team was experiencing a resurgence of popularity.  
(A) vast . . hollow  
(B) sparse . . thunderous  
(C) enormous . . deafening  
(D) unimpressive . . muted  
(E) negligible . . rousing
- Evidence that the universe is expanding ----- our perception of the cosmos and thus caused a ----- in astronomical thinking.  
(A) advanced . . setback  
(B) altered . . revolution  
(C) contradicted . . truce  
(D) reinforced . . crisis  
(E) halted . . breakthrough
- Although the theory that widespread lead poisoning contributed to the decline of the Roman Empire has gained -----, the evidence is still -----.  
(A) credence . . irrefutable  
(B) disrepute . . dubious  
(C) acceptance . . convincing  
(D) momentum . . systematic  
(E) currency . . inconclusive
- The fashion designer favored fabrics that were so ----- as to be virtually transparent.  
(A) palpable (B) diaphanous (C) variegated  
(D) luxurious (E) anomalous
- Professor Williams disdained tradition: she regularly attacked cherished beliefs and institutions, earning a reputation as -----.  
(A) an egalitarian (B) a dowager  
(C) a dilettante (D) an iconoclast  
(E) a purveyor



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

Questions 7-19 are based on the following passage.

*This passage, taken from an early nineteenth-century novel, presents two characters—Shirley Keeldar, a young woman of twenty-one who has inherited a fortune and land in Yorkshire, England, and Mr. Sympson, the uncle who was her guardian until she reached adulthood.*

Miss Keeldar and her uncle had characters that would not harmonize,—that never had harmonized. He was irritable, and she was spirited; he was despotic, and she liked freedom; he was worldly, and she, perhaps, romantic.

Not without purpose had he come down to Yorkshire: his mission was clear, and he intended to discharge it conscientiously: he anxiously desired to have his niece married; to make for her a suitable match; give her in charge to a proper husband, and wash his hands of her for ever.

The misfortune was, from infancy upwards, Shirley and he had disagreed on the meaning of the words "suitable" and "proper." She never yet had accepted his definition; and it was doubtful whether, in the most important step of her life, she would consent to accept it.

The trial soon came.

Mr. Wynne announced to Mr. Sympson that his family wished to arrange a marriage between his son, Samuel Fawthrop Wynne, and Miss Keeldar.

"Decidedly suitable! Most proper!" pronounced Mr. Sympson. "A fine unencumbered estate; real substance; good connections. *It must be done!*"

He sent for his niece to the oak-parlor; he shut himself up there with her alone; he communicated the offer; he gave his opinion; he claimed her consent.

It was withheld.

"No: I shall not marry Samuel Fawthrop Wynne."

"I ask why? I must have a reason. In all respects he is more than worthy of you."

She stood on the hearth; she was pale as the white marble slab and cornice behind her; her eyes flashed large, dilated, unsmiling.

"And I ask in what sense that young man is worthy of me?"

"He has twice your money,—twice your common sense;—equal connections,—equal respectability."

"Had he my money counted five score times, I would take no vow to love him."

40 "Please to state your objections."

"He has run a course of despicable, commonplace profligacy. Accept that as the first reason why I spurn him."

45 "Miss Keeldar, you shock me!"

"That conduct alone sinks him in a gulf of immeasurable inferiority. His intellect reaches no standard I can esteem:—there is a second stumbling block. His views are narrow; his feelings are blunt; his tastes are coarse; his manners vulgar."

50 "The man is a respectable, wealthy man. To refuse him is presumption on your part."

"I refuse, point-blank! Cease to annoy me with the subject: I forbid it!"

55 "Is it your intention ever to marry, or do you prefer celibacy?"

"I deny your right to claim an answer to that question."

"May I ask if you expect some man of title—some peer of the realm—to demand your hand?"

60 "I doubt if the peer breathes on whom I would confer it."

"Were there insanity in the family, I should believe you mad. Your eccentricity and conceit touch the verge of frenzy."

65 "Perhaps, ere I have finished, you will see me over-leap it."

"I anticipate no less. Frantic and impracticable girl! Take warning! I dare you to sully our name by a misalliance!"

70 "Our name! Am I called Sympson?"

"God be thanked that you are not! But be on your guard!—I will not be trifled with!"

"What, in the name of common law and common sense, would you, or could you do, if my pleasure led me to a choice you disapprove?"

75 "Take care! take care!" (warning her with voice and hand that trembled alike.)

"Why? What shadow of power have you over me? Why should I fear you?"

80 "Take care, madam!"

"Scrupulous care I will take, Mr. Sympson. Before I marry, I am resolved to esteem—to admire—to love."



- “Preposterous stuff! indecorous! unwomanly!”  
 “To love with my whole heart. I know I speak  
 85 in an unknown tongue; but I feel indifferent whether  
 I am comprehended or not.”  
 “And if this love of yours should fall on a beggar?”  
 “On a beggar it will never fall. Mendicancy is  
 not estimable.”  
 90 “On a low clerk, a play-actor, a play-writer,  
 or—or—”  
 “Take courage, Mr. Sympson! Or what?”  
 “Any literary scrub, or shabby, whining artist.”  
 “For the scrubby, shabby, whining, I have no taste;  
 95 for literature and the arts, I have. And there I wonder  
 how your Fawthrop Wynne would suit me? He can-  
 not write a note without orthographical errors; he  
 reads only a sporting paper; he was the booby of  
 Stülbro’ grammar school!”  
 100 “Unladylike language! To what will she come?”  
 He lifted hands and eyes toward the heavens.  
 “Never to the altar with Sam Wynne.”  
 “To what will she come? Why are not the laws  
 more stringent, that I might compel her to hear reason?”  
 105 “Console yourself, uncle. Were Britain a serfdom,  
 and you the czar, you could not *compel* me to this  
 step. I will write to Mr. Wynne. Give yourself no  
 further trouble on the subject.”
7. The episode presented in the passage is best described as a
- setback in an otherwise warm family relationship
  - disappointment experienced by a young and ambitious woman
  - confrontation between people whose differences seem irreconcilable
  - collaboration between two individuals whose goals are similar
  - conversation about the need for unity within an extended family
8. In context, the contrasts in lines 3-5 suggest that Miss Keeldar is “perhaps, romantic” in that she
- seems attractive and mysterious to others
  - is overly concerned with finding a good husband
  - has passionate and unconventional ideas about life
  - prefers to read books and poetry about love
  - is the subject of fancifully exaggerated stories
9. The list in lines 8-11 (“he anxiously . . . ever”) suggests that Mr. Sympson is primarily motivated by
- anticipation of a project on which he and his niece can collaborate
  - eagerness to help his niece realize her ambitious goals
  - apprehension about his family’s tarnished reputation
  - frustration with the limited opportunities available to his niece
  - impatience to free himself of a perceived family responsibility
10. Mr. Sympson’s comments in lines 22-23 (“A fine . . . connections”) indicate that a marriage is suitable when it
- meets the emotional needs of both partners
  - promises to benefit the local community
  - has the approval of all family members
  - involves formal ceremonies and celebrations
  - brings social and financial advantages
11. Miss Keeldar’s first objection to Mr. Wynne (lines 41-43) is that he
- wastes his time in reckless, undignified pursuits
  - expresses no regret for damage caused by his actions
  - fails to treat others with the respect they deserve
  - is dependent on his family for financial support
  - lacks the imagination and sensitivity of an artist
12. Miss Keeldar responds to the question posed in lines 54-55 by doing which of the following?
- Denying the accusation that she is secretly engaged
  - Challenging the idea that she must address the question
  - Correcting the exaggerations implicit in the question
  - Contradicting her earlier claim of complete independence
  - Asserting her right to live without marrying



13. The passage as a whole suggests that the implied threat in lines 70-71 ("But be . . . with") is
- (A) implausible, because Miss Keeldar can outwit Mr. Sympson
  - (B) serious, because Miss Keeldar's decisions must be approved by Mr. Sympson
  - (C) misleading, because Mr. Sympson is genuinely concerned about Miss Keeldar's happiness
  - (D) baseless, because Mr. Sympson has no real power over Miss Keeldar
  - (E) absurd, because Miss Keeldar herself is trying to intimidate Mr. Sympson
14. In lines 80-82 ("Scrupulous . . . love"), Miss Keeldar deflects the warning from Mr. Sympson by
- (A) deliberately misunderstanding his meaning
  - (B) scornfully turning the blame back on him
  - (C) childishly mocking the tone of his comment
  - (D) lamenting his failure to sympathize with her
  - (E) justifying her previously sensible behavior
15. Miss Keeldar uses the expression "an unknown tongue" (line 85) to suggest that Mr. Sympson is
- (A) mistrustful of anything new and unfamiliar
  - (B) ignorant of Wynne's reputation in the community
  - (C) inclined to speak in an obscure manner
  - (D) incapable of understanding her sentiments
  - (E) unwilling to acknowledge their family's mistakes
16. Mr. Sympson poses the question in line 100 ("To . . . come") as a
- (A) warning about financial losses
  - (B) prediction of a bleak future
  - (C) confession of his own relief
  - (D) plea for an unexpected diversion
  - (E) condemnation of conventional lifestyles
17. Miss Keeldar responds to the question in line 100 ("To . . . come") as if it were an
- (A) unreasonable request for an explanation
  - (B) appeal to her sense of fair play
  - (C) inquiry about her future course of action
  - (D) expression of moral uncertainty
  - (E) attempt to understand her family's history
18. Her remarks to Mr. Sympson indicate that Miss Keeldar views love as a
- (A) natural consequence of prolonged companionship
  - (B) crucial prerequisite for a satisfactory marriage
  - (C) desirable element in an independent woman's daily life
  - (D) fortunate accident that sometimes results from marriage
  - (E) sentimental delusion that is potentially harmful
19. Miss Keeldar and Mr. Sympson would most likely agree on which point?
- (A) She must seek marriage with an aristocratic man.
  - (B) She should feel honored by the attentions of the Wynne family.
  - (C) She needs to become more mature before she marries.
  - (D) She must not act against her most deeply held beliefs.
  - (E) She should not marry a man who is both poor and undignified.

**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

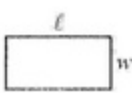
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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



$$A = \pi r^2$$

$$C = 2\pi r$$



$$A = \ell w$$



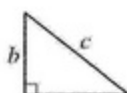
$$A = \frac{1}{2}bh$$



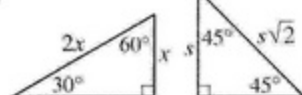
$$V = \ell wh$$



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



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

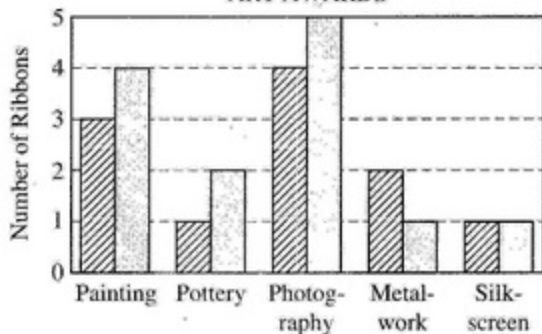


Special Right Triangles

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

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

ART AWARDS

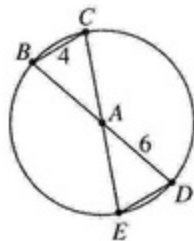


Prize Ribbons

Honorable Mention Ribbons

1. According to the chart above, how many honorable mention ribbons were awarded altogether?

- (A) 5  
(B) 8  
(C) 11  
(D) 13  
(E) 24



2. In the figure above, point  $A$  is the center of the circle and segments  $\overline{BD}$  and  $\overline{CE}$  are diameters. Which of the following statements is true?

- (A)  $CA > 6$   
(B)  $ED > 4$   
(C)  $BA < 4$   
(D)  $CA = 4$   
(E)  $ED = 4$

GO ON TO THE NEXT PAGE





3. For positive integers  $a$ ,  $b$ , and  $c$ , let  $\frac{a}{b}$  be defined

by  $\frac{\frac{a}{b}}{c} = a^b - ac + c$ . What is the value of  $\frac{\frac{5}{2}}{6}$ ?

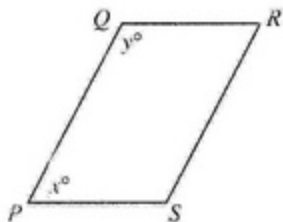
- (A) 1  
(B) 11  
(C) 16  
(D) 21  
(E) 31

4. In the  $xy$ -coordinate plane, what is the area of the square with opposite vertices at  $(-2, -2)$  and  $(2, 2)$ ?

- (A) 4  
(B) 8  
(C) 16  
(D) 32  
(E) 64

5. The four children in the Speer family are Owen, Chadd, Steph, and Daria. Chadd is neither the youngest nor the oldest. Daria is one of the two older children. Steph is the youngest child. Owen is often taken care of by his older brother and sister. Who is the oldest child?

- (A) Chadd  
(B) Daria  
(C) Owen  
(D) Steph  
(E) It cannot be determined from the information given.



6. If  $\overline{QR} \parallel \overline{PS}$  in the figure above, what is the value of  $2(x + y)$ ?

(A) 90  
 (B) 120  
 (C) 180  
 (D) 270  
 (E) 360

7. The average (arithmetic mean) of three positive numbers,  $x$ ,  $y$ , and  $z$ , is 12. When the greatest of these numbers is subtracted from the sum of the other two, the result is 4. If  $x < y < z$ , which of the following pairs of equations could correctly express the information above?

(A)  $x + y + z = 36$   
 $x + y - z = 4$   
 (B)  $x + y + z = 36$   
 $x + y - z = 8$   
 (C)  $x + y + z = 24$   
 $x + y - z = 4$   
 (D)  $x + y + z = 24$   
 $x + y - z = 8$   
 (E)  $x + y + z = 36$   
 $xy - z = 4$

GO ON TO THE NEXT PAGE

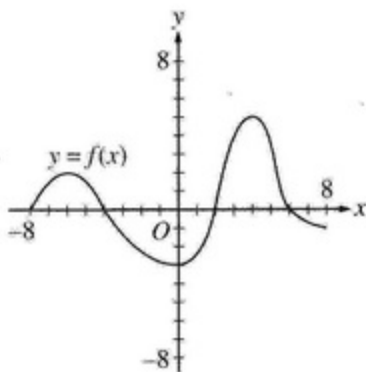


8. If  $x$  and  $y$  are positive integers and  $3^{2x} \cdot 3^{2y} = 81$ , what is the value of  $x + y$ ?

(A)  $\frac{3}{2}$   
 (B) 2  
 (C) 4  
 (D)  $\frac{81}{2}$   
 (E) 81

10. If  $k = \frac{x}{3}$  and  $x \neq 0$ , what does  $3x$  equal in terms of  $k$ ?

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



9. The figure above shows the graph of  $y = f(x)$  from  $x = -8$  to  $x = 8$ . For what value of  $x$  in this interval does the function  $f$  attain its maximum value?

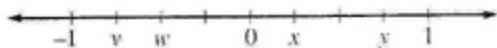
(A) 2  
 (B) 4  
 (C) 5  
 (D) 6  
 (E) 8

GO ON TO THE NEXT PAGE



11. A cube has 2 faces painted black and the remaining faces painted white. The total area of the white faces is 64 square inches. What is the volume of the cube, in cubic inches?

(A) 64  
 (B) 125  
 (C) 128  
 (D) 216  
 (E) 256



12. The letters  $v$ ,  $w$ ,  $x$ , and  $y$  represent numbers as shown on the number line above. Which of the following expressions has the least value?

(A)  $v + y$   
 (B)  $v + x$   
 (C)  $w + x$   
 (D)  $v - w$   
 (E)  $y - x$

3, 4, 6, 7, 10, 12

13. The number  $n$  is to be added to the list above. If  $n$  is an integer, which of the following could be the median of the new list of seven numbers?

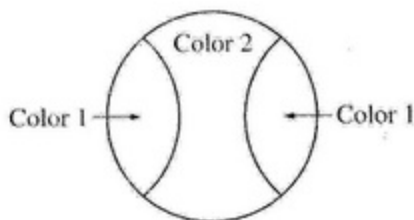
I. 6

II.  $6\frac{1}{2}$

III. 7

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

GO ON TO THE NEXT PAGE



14. As shown above, a certain design is to be painted using 2 different colors. If 5 different colors are available for the design, how many differently painted designs are possible?

(A) 10  
 (B) 20  
 (C) 25  
 (D) 60  
 (E) 120

15. If the length of a rectangle is increased by 30% and the width of the same rectangle is decreased by 30%, what is the effect on the area of the rectangle?

(A) It is increased by 60%.  
 (B) It is increased by 30%.  
 (C) It is unchanged.  
 (D) It is decreased by 15%.  
 (E) It is decreased by 9%.

$$n(t) = \frac{t^2}{2} - 20t + k$$

16. There was a 100-day period when the number of bees in a certain hive could be modeled by the function  $n$  above. In the function,  $k$  is a constant and  $n(t)$  represents the number of bees on day number  $t$  for  $0 \leq t \leq 99$ . On what number day was the number of bees in the hive the same as it was on day number 10?

(A) 20  
 (B) 30  
 (C) 40  
 (D) 50  
 (E) 60

**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. There is many challenges associated with starting one's own business.
- (A) is many challenges associated  
 (B) is many challenges to associate  
 (C) is many challenges associating  
 (D) are many challenges associated  
 (E) are many challenges which associate
2. The watercolors it has on display by the museum represent the era when Japan's emergence from feudalism and isolation inspired its artists to explore new themes and techniques.
- (A) it has on display by the museum represent the era when  
 (B) that it, the museum, is displaying represents the era of  
 (C) on display at the museum represent the era when  
 (D) displayed at the museum representing the era when  
 (E) being displayed at the museum represents the era while
3. The origins of the Teapot Dome scandal can be traced to the presidency of Theodore Roosevelt, William Howard Taft, and Woodrow Wilson.
- (A) can be traced to the presidency of  
 (B) can be traced to the presidencies of  
 (C) happened in the presidency of  
 (D) happening during the presidencies of  
 (E) that happened in the presidency of
4. When Sheila and Lucy visited the restaurant, she noticed that the menu had changed and that their favorite dish was no longer offered.
- (A) she noticed that the menu had changed  
 (B) she notices that the menu has changed  
 (C) Sheila has noticed the menu changed  
 (D) Sheila had noticed the menu changing  
 (E) Sheila noticed that the menu had changed



5. Carried by the strong, dry winds of the stratosphere, the 1980 eruption of Mount Saint Helens caused dust that crossed the United States in three days and circled the globe in two weeks.
- (A) the 1980 eruption of Mount Saint Helens caused dust that  
 (B) Mount Saint Helens' eruption in 1980 caused dust that  
 (C) dust from the 1980 eruption of Mount Saint Helens  
 (D) dust from the 1980 eruption of Mount Saint Helens that  
 (E) there was dust from the 1980 eruption of Mount Saint Helens and it
6. The new regulations have so complicated the process of formulating a school budget to where no one on the Board of Education is eager to undertake the task.
- (A) budget to where  
 (B) budget, therefore  
 (C) budget, even  
 (D) budget as  
 (E) budget that
7. The shift from traditional to cosmetic dentistry is because adults are getting fewer cavities and becoming more vain.
- (A) is because adults are getting fewer cavities and becoming  
 (B) is because of adults getting fewer cavities and their becoming  
 (C) is caused from adults getting fewer cavities and in addition become  
 (D) is occurring because adults are getting fewer cavities and becoming  
 (E) occurs because of adults getting fewer cavities and become
8. If asked to name a musical group with broad and lasting appeal, the Beatles would be the choice for many, no matter what kinds of music are actually preferred.
- (A) the Beatles would be the choice for many, no matter what kinds of music are actually preferred  
 (B) the Beatles will be chosen by many people, no matter what kinds of music they actually prefer  
 (C) the choice for many people, whatever kinds of music they actually prefer, would be the Beatles  
 (D) many, who actually preferred different kinds of music, choose the Beatles  
 (E) many people, no matter what kinds of music they actually prefer, would choose the Beatles
9. In 1972, to reduce pollution in the Great Lakes, limits having been set by the United States and Canada on the amount of phosphorus that could be discharged into Lakes Erie and Ontario.
- (A) limits having been set by the United States and Canada  
 (B) limits set by the United States and Canada  
 (C) limits have been set by the United States and Canada  
 (D) the United States and Canada have set limits  
 (E) the United States and Canada set limits
10. Ruben Blades, already certified as a lawyer in his native country of Panama, supported himself by singing salsa while pursuing an advanced degree in international law at Harvard University.
- (A) Blades, already certified as a lawyer  
 (B) Blades, already being a certified lawyer  
 (C) Blades, already certified for being a lawyer  
 (D) Blades was already certified as a lawyer  
 (E) Blades is certified as a lawyer already



11. The newspaper business in the United States faces a challenge, being that it must reconcile the high-minded goal of informing readers with the commercial one of making money.
- (A) challenge, being that it must reconcile the high-minded goal of informing readers with the commercial one of making money  
 (B) challenge of it reconciling the high-minded goal of informing readers with the commercial one of making money  
 (C) challenge; as such it must reconcile the high-minded goal of informing readers with the commercial one of making money  
 (D) challenge because it must reconcile the high-minded goal of informing readers with the commercial one of making money  
 (E) challenge; since it has the high-minded goal of informing readers with the commercial one of making money being reconciled
12. All species of sea turtles are endangered because of overharvesting of adults, their eggs being disturbed, and destruction of nesting habitats.
- (A) of overharvesting of adults, their eggs being disturbed, and destruction of nesting habitats  
 (B) of the adults being overharvested, their eggs disturbed, and destroying nesting habitats  
 (C) the overharvesting of adults, disturbance of their eggs, and destruction of nesting habitats  
 (D) the adults are overharvested, their eggs are disturbed, and their nesting habitats are destroyed  
 (E) being overharvested as adults, their eggs being disturbed, and destruction of nesting habitats
13. Although the exact cause of type 2 diabetes is unknown, experts say that for some people improper diet and lack of exercise contributes to the onset of the disease.
- (A) exercise contributes  
 (B) exercise, they contribute  
 (C) exercise contribute  
 (D) exercise, contributing  
 (E) exercise has been contributing
14. Acquaintances of Alexei have commented that he is at once annoying because of his unpredictability but his imagination is still a delight.
- (A) but his imagination is still a delight  
 (B) although he is delightfully imaginative  
 (C) and he is delightful in his imagination too  
 (D) while being imaginative and they are delighted  
 (E) and delightful because of his imagination

## 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 AEPV, BWPV, CFPV

### Critical Reading

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

Number correct	Number correct	Number correct
Number incorrect	Number incorrect	Number incorrect

### Mathematics

Section 4			Section 7			Section 9		
Multiple-Choice Questions		Student-Produced Response Questions	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	
1. E 1	9. 9	1. A 1	11. B 3	1. D 1	9. B 3			
2. B 1	10. .2 or 1/5	2. E 1	12. D 3	2. E 1	10. B 3			
3. E 2	11. 15	3. B 1	13. E 3	3. A 1	11. A 3			
4. D 2	12. $0 < x < 1.5$ or $0 < x < 3/2$	4. D 2	14. E 3	4. C 2	12. B 4			
5. A 3	13. 6	5. C 1	15. B 3	5. B 1	13. D 3			
6. C 3	14. 117	6. C 2	16. A 3	6. E 3	14. B 4			
7. E 3	15. 2.5 or 5/2	7. D 2	17. C 4	7. A 3	15. E 5			
8. C 5	16. 5940	8. D 2	18. D 4	8. B 3	16. B 4			
	17. 90	9. D 3	19. A 5					
	18. 4.2 or 21/5	10. C 2	20. A 5					

Number correct	Number correct (9-18)	Number correct
Number incorrect	Number incorrect	Number incorrect

### Writing

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

## The Scoring Process

Machine scoring is done in three steps:

- *Scanning.* Your answer sheet is scanned electronically, and the circle you filled in for each question is recorded in a computer file.
- *Scoring.* The computer compares the circle filled in for each question with the correct response.

Each correct answer receives one point.

Omitted questions do not count toward your score.

One-fourth of a point is subtracted for each wrong answer to multiple-choice questions.

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

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

Obtaining raw scores frequently involves the rounding of fractional numbers to the nearest whole number. For example, a raw score of 36.25 is rounded to 36, the nearest whole number. A raw score of 36.50 is rounded upward to 37.

- *Converting to a scaled score.* Raw scores are then placed on the scale of 200–800 through a process that adjusts scores to account for minor differences in difficulty among different editions of the test. This process, known as equating, is performed so that a student's reported score is not affected by the edition of the test taken or by the abilities of the group with whom the student takes the test. As a result of placing SAT scores on the College Board scale, scores earned by students at different times can be compared. For example, an SAT mathematics score of 400 on a test taken at one administration indicates the same level of developed mathematics ability as a 400 score obtained on a different edition of the test taken at another time.
- *Essay scoring.* Using the scoring guide shown on page 51, experienced, trained high school and college faculty score the essay. Each essay is read independently by two readers who rate it on a scale of 1 to 6. (If the two scores differ by more than one point, a third reader scores the essay.) The two readers' scores are added together, and the essay subscore is reported on a scale of 2 to 12.

The essay section is worth approximately 30 percent of the raw score, and the multiple-choice writing section counts for approximately 70 percent. The total raw score is converted to a score on the 200–800 scale.

# SAT Essay Scoring Guide

## SCORE OF 6

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

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

## SCORE OF 3

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

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

## SCORE OF 5

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

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

## SCORE OF 2

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

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

## SCORE OF 4

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

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

## SCORE OF 1

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

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

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

# Scoring Worksheet

## Form Codes AEPV, BWPV, CFPV

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

### Get Your Mathematics Score

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

Section 4: Questions 1-18 \_\_\_\_\_

Section 7: Questions 1-20 + \_\_\_\_\_

Section 9: Questions 1-16 + \_\_\_\_\_

Total = \_\_\_\_\_ (A)

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

Section 4: Questions 1-8 \_\_\_\_\_

Section 7: Questions 1-20 + \_\_\_\_\_

Section 9: Questions 1-16 + \_\_\_\_\_

Total = \_\_\_\_\_

× 0.25 = \_\_\_\_\_ (B)

A - B = \_\_\_\_\_  
Mathematics Raw Score

Round mathematics raw score to the nearest whole number.

\_\_\_\_\_

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

\_\_\_\_\_

### Get Your Critical Reading Score

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

Section 3: Questions 1-24 \_\_\_\_\_

Section 6: Questions 1-24 + \_\_\_\_\_

Section 8: Questions 1-19 + \_\_\_\_\_

Total = \_\_\_\_\_ (A)

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

Section 3: Questions 1-24 \_\_\_\_\_

Section 6: Questions 1-24 + \_\_\_\_\_

Section 8: Questions 1-19 + \_\_\_\_\_

Total = \_\_\_\_\_

× 0.25 = \_\_\_\_\_ (B)

A - B = \_\_\_\_\_  
Critical Reading  
Raw Score

Round critical reading raw score to the nearest whole number.

\_\_\_\_\_

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

\_\_\_\_\_

### Get Your Writing Score

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

Section 5: Questions 1-35 \_\_\_\_\_

Section 10: Questions 1-14 + \_\_\_\_\_

Total = \_\_\_\_\_ (A)

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

Section 5: Questions 1-35 \_\_\_\_\_

Section 10: Questions 1-14 + \_\_\_\_\_

Total = \_\_\_\_\_

× 0.25 = \_\_\_\_\_ (B)

A - B = \_\_\_\_\_  
Writing multiple-choice  
Raw Score

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

\_\_\_\_\_ (C)

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

\_\_\_\_\_

Copy your essay score from your QAS report.

\_\_\_\_\_ (D)

Use the appropriate writing composite table (pages 54-56) for your form code and look up your writing multiple-choice raw score (C) and your essay score (D) to find your writing composite scaled score.

\_\_\_\_\_

**SAT Score Conversion Table**  
**Form Codes AEPV, BWPV, CFPV**

Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score	Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score
67	800			31	510	550	54
66	800			30	500	540	54
65	800			29	490	540	53
64	800			28	490	530	52
63	780			27	480	520	51
62	770			26	480	510	50
61	750			25	470	500	49
60	740			24	460	490	49
59	720			23	460	490	48
58	710			22	450	480	47
57	700			21	440	470	46
56	690			20	440	460	46
55	680			19	430	450	45
54	670	800		18	430	440	44
53	660	800		17	420	430	43
52	650	770		16	410	420	43
51	640	750		15	410	420	42
50	630	730		14	400	410	41
49	630	710	80	13	390	400	40
48	620	700	79	12	380	390	39
47	610	690	76	11	380	380	39
46	600	680	73	10	370	370	38
45	600	670	71	9	360	350	37
44	590	660	70	8	350	340	36
43	580	650	68	7	340	330	35
42	580	650	67	6	330	320	34
41	570	640	65	5	320	300	33
40	560	630	64	4	310	290	32
39	560	620	63	3	300	270	30
38	550	610	62	2	280	260	29
37	540	600	60	1	270	240	27
36	540	590	59	0	250	220	25
35	530	590	58	-1	230	200	23
34	530	580	57	-2	210	200	21
33	520	570	56	-3	200	200	20
32	510	560	55	and below			

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

## SAT Writing Composite Score Conversion Table Form Code AEPV

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

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

# SAT Writing Composite Score Conversion Table

## Form Code BWPV

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

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

# SAT Writing Composite Score Conversion Table

## Form Code CFPV

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

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