

# SAT I: Reasoning Test

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**Sunday, May 2000**

Solutions to this test are available. Call 800 323-7155 and ask for the *10 Real SATs Solutions Manual*, item number 007042, or go to [www.collegeboard.com](http://www.collegeboard.com).

# Section 1 1 1 1 1 1 1

Time—30 Minutes  
30 Questions

For each question in this section, select the best answer from among the choices given and fill in the corresponding oval 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:

Medieval kingdoms did not become constitutional republics overnight; on the contrary, the change was ----.

- (A) unpopular
- (B) unexpected
- (C) advantageous
- (D) sufficient
- (E) gradual

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

1. Lacking self-assurance, he was too ---- to ---- controversial topics with people he did not know well.

- (A) impassioned .. analyze
- (B) timid .. discuss
- (C) cautious .. suppress
- (D) knowledgeable .. disregard
- (E) perceptive .. defend

2. After winning the lottery, John bought sports cars, built a mansion, and wore designer suits, but, by thus ---- his ----, he alienated his friends.

- (A) enduring .. hardship
- (B) flaunting .. prosperity
- (C) undermining .. image
- (D) calculating .. successes
- (E) moderating .. consumption

3. Ballads often praise popular figures who have performed feats that many perceive as ----, such as defending the poor or resisting ---- authority.

- (A) modest .. acceptable
- (B) inescapable .. legitimate
- (C) insufficient .. overpowering
- (D) admirable .. unjust
- (E) unbelievable .. tolerable

4. As ---- as the disintegration of the Roman Empire must have seemed, that disaster nevertheless presented some ---- aspects.

- (A) momentous .. formidable
- (B) decisive .. unavoidable
- (C) unexpected .. ambiguous
- (D) advantageous .. beneficial
- (E) catastrophic .. constructive

5. Predictably, detail-oriented workers are ---- keeping track of the myriad particulars of a situation.

- (A) remiss in (B) adept at
- (C) humorous about (D) hesitant about
- (E) contemptuous of

6. The beauty of Mount McKinley is usually cloaked: clouds ---- the summit nine days out of ten.

- (A) release (B) elevate (C) entangle
- (D) shroud (E) attain

7. In the opening scene, the playwright creates such a strong impression of the ---- of the main characters that none of their subsequent, apparently honorable actions can ---- these characters in the eyes of the audience.

- (A) integrity .. discredit
- (B) conviction .. justify
- (C) corruption .. redeem
- (D) dignity .. excuse
- (E) degradation .. convict

8. By allowing one printer to be used by several computers, this device ---- the need for many separate printers.

- (A) accelerates (B) predetermines
- (C) substantiates (D) precludes
- (E) anticipates

9. In an attempt to malign and misrepresent their opponents, some candidates resort to ----.

- (A) arbitration (B) narcissism
- (C) calumny (D) tenacity
- (E) solicitude

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Each question below consists of a related pair of words or phrases, followed by five pairs of words or phrases labeled A through E. Select the pair that best expresses a relationship similar to that expressed in the original pair.

Example:

CRUMB : BREAD ::

- (A) ounce : unit
- (B) splinter : wood
- (C) water : bucket
- (D) twine : rope
- (E) cream : butter

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

10 GAZE : OBSERVER ::

- (A) hear : listener
- (B) banish : exile
- (C) separate : joint
- (D) operate : doctor
- (E) sprain : ankle

11 ODOMETER : DISTANCE ::

- (A) microscope : size
- (B) decibel : loudness
- (C) orchestra : instrument
- (D) computer : data
- (E) scale : weight

12 COPYRIGHT : BOOK ::

- (A) franchise : license
- (B) lease : owner
- (C) patent : design
- (D) trademark : registration
- (E) brand : manufacturer

13 FEIGN : DECEIVE ::

- (A) flee : elude
- (B) dangle : drop
- (C) send : receive
- (D) contract : lengthen
- (E) publish : write

14 ETHOS : VALUES ::

- (A) accord : nations
- (B) code : principles
- (C) policy : officials
- (D) debate : opinions
- (E) offense : criminals

15 TORPID : SLUGGISH ::

- (A) wrong : apologetic
- (B) refracted : direct
- (C) comic : funny
- (D) sad : empathetic
- (E) merry : morose

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

Questions 16-20 are based on the following passage.

*This excerpt from a novel by a Chinese American author is about a Chinese American woman named June. During a family dinner party attended by some of June's Chinese American friends, Waverly, a tax attorney, discusses an advertisement that June wrote for her.*

Waverly laughed in a lighthearted way. "I mean, really, June." And then she started in a deep television-announcer voice: "Three benefits, three needs, three reasons to buy . . . . Satisfaction guaranteed . . . ."

She said this in such a funny way that everybody thought it was a good joke and laughed. And then, to make matters worse, I heard my mother saying to Waverly: "True, one can't teach style. June is not sophisticated like you. She must have been born this way."

I was surprised at myself, how humiliated I felt. I had been outsmarted by Waverly once again, and now betrayed by my own mother.

Five months ago, some time after the dinner, my mother gave me my "life's importance," a jade pendant on a gold chain. The pendant was not a piece of jewelry I would have chosen for myself. It was almost the size of my little finger, a mottled green and white color, intricately carved. To me, the whole effect looked wrong: too large, too green, too garishly ornate. I stuffed the necklace in my lacquer box and forgot about it.

But these days, I think about my life's importance. I wonder what it means, because my mother died three months ago, six days before my thirty-sixth birthday. And she's the only person I could have asked to tell me about life's importance, to help me understand my grief.

I now wear that pendant every day. I think the carvings mean something, because shapes and details, which I never seem to notice until after they're pointed out to me, always mean something to Chinese people. I know I could ask Auntie Lindo, Auntie An-mei, or other Chinese friends, but I also know they would tell me a meaning that is different from what my mother intended. What if they tell me this curving line branching into three oval shapes is a pomegranate and that my mother was wishing me fertility and posterity? What if my mother really meant the carvings were a branch of pears to give me purity and honesty?

And because I think about this all the time, I always notice other people wearing these same jade pendants—not the flat rectangular medallions or the round white ones with holes in the middle but ones like mine, a two-inch oblong of bright apple green. It's as though we were all sworn to the same secret covenant, so secret we don't even know what we belong to. Last weekend, for example, I saw a bartender wearing one. As I fingered mine, I asked him, "Where'd you get yours?"

"My mother gave it to me," he said.

I asked him why, which is a nosy question that only one Chinese person can ask another; in a crowd of Caucasians, two Chinese people are already like family.

"She gave it to me after I got divorced. I guess my mother's telling me I'm still worth something."

And I knew by the wonder in his voice that he had no idea what the pendant really meant.

**16** In lines 1-5, Waverly characterizes June's advertisement as being

- (A) unsophisticated and heavy-handed
- (B) somber and convoluted
- (C) clear and concise
- (D) humorous and effective
- (E) clever and lively

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17 In the context of the passage, the statement "I was surprised at myself" (line 12) suggests that June

- (A) had been unaware of the extent of her emotional vulnerability
- (B) was exasperated that she allowed Waverly to embarrass her in public
- (C) was amazed that she could dislike anyone so much
- (D) had not realized that her mother admired her friend Waverly
- (E) felt guilty about how much she resented her own mother

18 For June, a significant aspect of what happened at the dinner party is that

- (A) her mother had taken great pains to make Waverly feel welcome
- (B) her mother had criticized her for arguing with Waverly
- (C) her mother had sided against her in front of family and friends
- (D) Waverly had angered June's mother
- (E) Waverly had lied to June's mother

19 The description of June's encounter with the bartender primarily serves to suggest that

- (A) the relationship of mother and son is different from that of mother and daughter
- (B) June is not the only one who ponders the meaning of a jade pendant
- (C) a jade pendant symbolizes the mystery of life and death
- (D) June finally understands the true meaning of her jade pendant
- (E) strangers are easier to talk to than family members and friends

20 The passage indicates that the act of giving a jade pendant can best be described as

- (A) a widely observed tradition
- (B) a mother's plea for forgiveness
- (C) an example of a mother's extravagance
- (D) an unprecedented act of generosity
- (E) an unremarkable event in June's life

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Questions 21-30 are based on the following passage.

The author of this excerpt discusses the relationship of art to history and politics, particularly during the period of political violence, persecution, and upheaval immediately preceding the Second World War.

In his famous poem on the death of the Irish poet and visionary W. B. Yeats, the English poet W. H. Auden wrote, "Ireland has her madness and her weather still / For poetry makes nothing happen." Elsewhere, Auden, with his characteristic and endearing honesty, commented that all the verse he wrote, all the political views that he expressed in the 1930's did not save a single Jewish person from Nazi persecution. "Those attitudes," he wrote, "only help oneself":

Artists and politicians would get along better at a time of crisis like the present, if the latter would only realize that the political history of the world would have been the same if not a poem had been written, nor a picture painted, nor a bar of music composed.

This of course is an empirical claim, and it is difficult to know how true it is because it is difficult to explain in historical terms. In any case, as we know, even works intended to prick our consciousness to political concern have tended to provoke at best an admiration for the works themselves and a moral self-admiration on the part of those who admired them. During the Spanish Civil War (1936-1939), the cynical bombing of the Spanish town of Guernica by Nazi warplanes made the painting *Guernica*, which expressed the horror of the event, happen. Therefore, it was not merely wit when *Guernica*'s painter, Pablo Picasso, answered a Nazi officer who showed him a postcard of the painting and asked, "Did you do that?" with "No, you did." Everyone knew who did what and why: the bombing was an atrocity meant by its perpetrators to be perceived as an atrocity committed by ruthless fighters. The painting was used as a fundraiser for the victims of the war in Spain, but those who paid money for the privilege of filing past it only used it as a mirror to reflect attitudes *already* in place, and in later years it required art-historical knowledge to know what was going on: it hung in the Museum of Modern Art as a handsome backdrop, and it was sufficiently attractive in its gray and black harmonies that an article on interior decoration described how a copy of the painting ornamented a sophisticated modern kitchen where fancy meals were concocted for bright and brittle guests. So in the end it did about as much for the devastated townspeople as Auden's verses did for the people and causes he wrote about, making nothing relevant happen, simply memorializing, enshrining, spiritualizing, about at the same level as a solemn ritual whose function is to confess the extreme limitation of our powers to make anything happen.

Fine, some would say. But if the sole political role of poetry is this deflected, consolatory, ceremonial — not to say reliquary — office, why is the

political attitude that *art is dangerous* so pervasive in our society? The history of art is the history of the suppression of art. This suppression is itself a kind of futility if the art that one seeks to cast in chains has no effectiveness whatsoever, and one confers upon the art the illusion of competency by treating as dangerous what would make nothing happen if it were allowed to be free. Where, if Auden is right, does the belief in the dangerousness of art come from? Indeed, construing art, as Auden does, as a causally or politically neutered activity is itself an act of neutralization. Representing art as something that in its nature can make nothing happen is not so much a view opposed to the view that art is dangerous as it is a way of responding to the sensed danger of art by treating art as though it were nothing to be afraid of.

21 The author's main point about the relationship between art and politics is that

- (A) Auden's view of the role of art is more widely accepted than the view that art is dangerous
- (B) Auden's denial of the political impact of art is somewhat misleading
- (C) artists such as Auden and Yeats incorporate political concerns in their art
- (D) artists and the people who admire their creations have different ideas about the political role of art
- (E) politicians suppress art that has the potential to cause undesirable political changes

22 Auden believed that artists and politicians would "get along better at a time of crisis" (lines 11-12) if politicians would

- (A) heed the messages that artists convey through art
- (B) remember the contributions that artists have made to culture through the ages
- (C) admit that art speaks in a language that is incomprehensible to politicians
- (D) recognize that art does not affect the course of history
- (E) acknowledge the role of artists in shaping the consciousness of a nation

- 23** The author emphasizes the word "already" (line 38) in order to stress the point that
- (A) Picasso's painting was perceived as just another artist's depiction of war
  - (B) Picasso's political attitudes were widely known
  - (C) Picasso's painting did not cause a change in political attitudes
  - (D) Picasso did not expect his painting to be so controversial
  - (E) Picasso had not thought his painting would be so quickly acclaimed
- 24** The author refers to "art-historical knowledge" (lines 39-40) in order to emphasize which point about Picasso's *Guernica*?
- (A) Most art historians share Auden's view of art.
  - (B) The original purpose of the painting gradually became obscure.
  - (C) The painting continues to memorialize those who were killed in the bombing of *Guernica*.
  - (D) Art historians continue to discuss the artistic merits of the painting.
  - (E) The Museum of Modern Art is an appropriate setting for the painting.
- 25** The tone of the description in lines 42-46 ("and it was . . . guests") is one of
- (A) sorrow
  - (B) admiration
  - (C) indifference
  - (D) sympathy
  - (E) sarcasm
- 26** In discussing Picasso's *Guernica*, the author indicates that the painting's ultimate accomplishment was
- (A) providing a politically effective condemnation of an atrocity
  - (B) heightening political consciousness among its viewers
  - (C) commemorating a terrible event
  - (D) gaining Picasso recognition as a political activist
  - (E) revealing the versatility of Picasso's artistic talent
- 27** The author would probably characterize "some" (line 54) as being
- (A) understandably content to follow a practical course of action
  - (B) relieved that a difficult decision has been made
  - (C) agreeable to a compromise that would weaken the author's argument
  - (D) reluctant to compare the concerns of artists with those of politicians
  - (E) convinced that art has a limited political role
- 28** In line 68, the word "neutralization" refers to an act of
- (A) making objective
  - (B) blending with something that counteracts
  - (C) bringing to destruction
  - (D) rendering ineffective
  - (E) prohibiting conflict
- 29** The author concludes that "Representing art as something that in its nature can make nothing happen" (lines 68-70) is actually
- (A) proof that art is subversive
  - (B) an activity that in itself is inconsequential
  - (C) the only valid response to art
  - (D) a reaction to perceptions about art's power
  - (E) an act of defiance in response to political pressures
- 30** The author's strategy in the passage is best described as
- (A) relating an incident and then explaining its significance
  - (B) refuting an argument and then examining a counterargument
  - (C) presenting a position and then criticizing it
  - (D) summarizing an achievement and then analyzing it
  - (E) describing several examples and then explaining how they differ from one another

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

# Section 2

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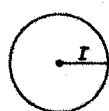
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**Time—30 Minutes**  
**25 Questions**

**In this section solve each problem, using any available space on the page for scratchwork. Then decide which is the best of the choices given and fill in the corresponding oval on the answer sheet.**

**Notes:**

1. The use of a calculator is permitted. All numbers used are real numbers.
2. 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.



$$A = \pi r^2$$

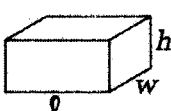
$$C = 2\pi r$$



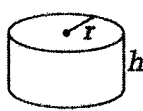
$$A = lw$$



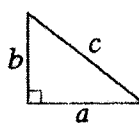
$$A = \frac{1}{2}bh$$



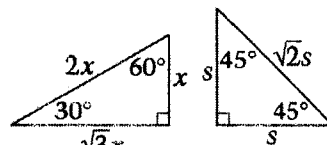
$$V = lwh$$



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



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



Special Right Triangles

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

The measure in degrees of a straight angle is 180.

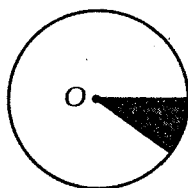
The sum of the measures in degrees of the angles of a triangle is 180.

- 1 If  $n + n + n + n + 1 = 2 + n + n + n$ , what is the value of  $n$ ?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 7

- 3 Which of the following numbers is greater than 0.428?

- (A) 0.053
- (B) 0.42
- (C) 0.43
- (D) 0.419
- (E) 0.4228



- 2 O is the center of the circle above. Approximately what percent of the circle is shaded?

- (A) 1%
- (B) 10%
- (C) 25%
- (D) 50%
- (E) 75%

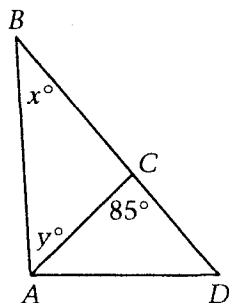
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**2****2****2****2****2****2****2****2**

- 4 Karen's salary is greater than Margot's but less than Henrietta's. If  $k$ ,  $m$ , and  $h$  represent each of their salaries, respectively, which of the following is true?

- (A)  $h < k < m$
- (B)  $k < h < m$
- (C)  $k < m < h$
- (D)  $m < h < k$
- (E)  $m < k < h$



Note: Figure not drawn to scale.

- 5 In  $\triangle ABD$  above, if  $y = 40$ , what is the value of  $x$ ?

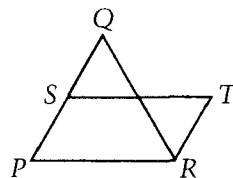
- (A) 25
- (B) 30
- (C) 35
- (D) 40
- (E) 45

- 6 Chuck is writing the page number on the bottom of each page of a 25-page book report, starting with 1. How many digits will he have written after he has written the number 25?

- (A) 35
- (B) 40
- (C) 41
- (D) 49
- (E) 50

- 7 Tim had  $2b$  books for sale at a price of  $k$  dollars each. If  $y$  is the number of books he did not sell, which of the following represents the total dollar amount he received in sales from the books?

- (A)  $k(2b - y)$
- (B)  $k(y - 2b)$
- (C)  $ky - 2b$
- (D)  $2b - ky$
- (E)  $2bk - y$



- 8 In the figure above,  $\triangle PQR$  is equilateral and  $PSTR$  is a parallelogram. If  $S$  is the midpoint of  $PQ$  and the perimeter of  $\triangle PQR$  is 6, what is the perimeter of  $PSTR$ ?

- (A) 9
- (B) 8
- (C) 6
- (D) 4
- (E) 3

**2****2****2****2****2****2****2****2**

- 9** Five balls, each of radius  $2\frac{1}{2}$  inches, are placed side by side in a straight row with adjacent balls touching. What is the distance, in inches, between the center of the first ball and the center of the last ball?

(A) 15  
(B)  $17\frac{1}{2}$   
(C) 20  
(D)  $22\frac{1}{2}$   
(E) 25

- 10** The average (arithmetic mean) of nine numbers is 9. When a tenth number is added, the average of the ten numbers is also 9. What is the tenth number?

(A) 0  
(B)  $\frac{9}{10}$   
(C)  $\frac{10}{9}$   
(D) 9  
(E) 10

$$\begin{array}{r} 1A \\ + A \\ \hline 2B \end{array}$$

- 11** In the correctly solved addition problem above,  $A$  and  $B$  represent digits. If  $A$  is not equal to  $B$ , how many different digits from 0 through 9 could  $A$  represent?

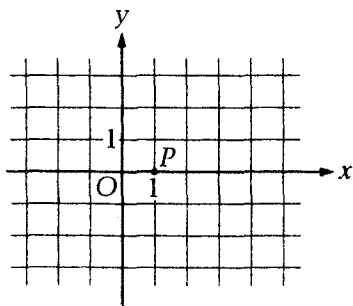
(A) Two  
(B) Three  
(C) Five  
(D) Seven  
(E) Nine

- 12** When 247 is divided by 6, the remainder is  $r$ , and when 247 is divided by 12, the remainder is  $s$ . What is the value of  $r - s$ ?

(A) -6  
(B) -1  
(C) 0  
(D) 1  
(E) 6

**2****2****2****2****2****2****2****2**

Questions 13-14 refer to the following coordinate system.



- 13** Point  $T$  (not shown) is located by beginning at  $P$ , moving 1 unit up and then moving 2 units to the right. What is the slope of line  $PT$ ?
- (A)  $\frac{1}{3}$   
(B)  $\frac{1}{2}$   
(C) 1  
(D) 2  
(E) 3
- 
- 14** Line  $\ell$  (not shown) contains point  $P$  and has slope 5. Which of the following points is on line  $\ell$ ?
- (A) (0, 5)  
(B) (1, 5)  
(C) (2, 5)  
(D) (5, 1)  
(E) (5, 5)

- 15** The quantity  $(3 \times 8^{12})$  is how many times the quantity  $(3 \times 8^5)$ ?

(A) 7  
(B) 8  
(C) 21  
(D)  $8^7$   
(E)  $3 \times 8^7$

- 16** The dogs in a certain kennel are fed Brand  $A$  and Brand  $B$  dog food only. Of these dogs, 6 dogs eat Brand  $A$  and 15 dogs eat Brand  $B$ . If 4 of the dogs that eat Brand  $B$  also eat Brand  $A$ , how many dogs are in the kennel?

(A) 17  
(B) 19  
(C) 21  
(D) 25  
(E) 29

- 17** On a number line, point  $A$  has coordinate  $-3$  and point  $B$  has coordinate 12. Point  $P$  is  $\frac{2}{3}$  of the way from  $A$  to  $B$ . What is the coordinate of point  $P$ ?

(A)  $-1$   
(B) 2  
(C) 6  
(D) 7  
(E) 10

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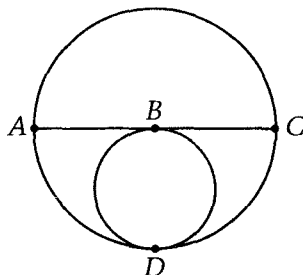
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- 18 If the ratio of two positive integers is 3 to 2, which of the following statements about these integers CANNOT be true?

- (A) Their sum is an odd integer.  
 (B) Their sum is an even integer.  
 (C) Their product is divisible by 6.  
 (D) Their product is an even integer.  
 (E) Their product is an odd integer.



- 19 In the figure above,  $B$  is the center of the larger circle. The smaller circle is tangent to the larger circle at  $D$  and contains point  $B$ . If the length of diameter  $AC$  is 12, what is the area of the smaller circle?

- (A)  $6\pi$   
 (B)  $9\pi$   
 (C)  $12\pi$   
 (D)  $16\pi$   
 (E)  $36\pi$

$x$	1	2	3	4
$y$	$\frac{(0)(2)}{3}$	$\frac{(1)(3)}{5}$	$\frac{(2)(4)}{7}$	$\frac{(3)(5)}{9}$

- 20 Of the following equations, which describes the relationship between  $x$  and  $y$  in the table above?

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

- 21  $S$  is the sum of the first 100 consecutive positive even integers, and  $T$  is the sum of the first 100 consecutive positive integers.  $S$  is what percent greater than  $T$ ?

- (A) 100%  
 (B) 50%  
 (C) 10%  
 (D) 2%  
 (E) 1%

Product	Number of People Choosing Product
W	37
X	51
Y	$m$
Z	$n$

- 22** The table above shows the results of a survey of 200 people in which each person chose exactly 1 of 4 products. If  $m$  and  $n$  are positive integers, what is the greatest possible value of  $n$ ?
- (A) 12
  - (B) 56
  - (C) 111
  - (D) 112
  - (E) 200

- 23** If  $kn \neq k$  and  $n = \frac{1}{k}$ , which of the following expressions is equivalent to  $\frac{1-k}{1-n}$ ?
- (A)  $-n$
  - (B)  $-k$
  - (C) 1
  - (D)  $k$
  - (E)  $n$

- 24** The first two numbers of a sequence are 1 and 3, respectively. The third number is 4, and, in general, every number after the second is the sum of the two numbers immediately preceding it. How many of the first 1,000 numbers in this sequence are odd?
- (A) 333
  - (B) 500
  - (C) 665
  - (D) 666
  - (E) 667

- 25** Circle  $C$  has radius  $\sqrt{2}$ . Squares with sides of length 1 are to be drawn so that, for each square, one vertex is on circle  $C$  and the rest of the square is inside circle  $C$ . What is the greatest number of such squares that can be drawn if the squares do not have overlapping areas?
- (A) None
  - (B) One
  - (C) Two
  - (D) Three
  - (E) Four

# Section 3 3 3 3 3 3 3

**Time — 30 Minutes**  
**36 Questions**

**For each question in this section, select the best answer from among the choices given and fill in the corresponding oval 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:**

Medieval kingdoms did not become constitutional republics overnight; on the contrary, the change was ----.

- (A) unpopular
- (B) unexpected
- (C) advantageous
- (D) sufficient
- (E) gradual

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

- 1** The stage director insisted that before the next performance the set be ---- to eliminate its dinginess.

- (A) requisitioned (B) enlarged
- (C) refurbished (D) demolished
- (E) relocated

- 2** Most pioneers ---- this valley on their journey to the West because its rugged terrain and frequent landslides made it a ---- place for travelers.

- (A) flanked..fascinating
- (B) avoided..necessary
- (C) encompassed..curious
- (D) enjoyed..troublesome
- (E) skirted..hazardous

- 3** Most people would be amazed to discover how ---- their recollections are, even those memories of which they are most ----.

- (A) unpleasant..frightened
- (B) repressed..unaware
- (C) inaccurate..certain
- (D) amorphous..unsure
- (E) trustworthy..confident

- 4** Perhaps the most visible sign of the ---- nature of the Cherokee nation was the fact that the women who led each clan picked the chief.

- (A) stoic (B) matriarchal (C) defensive
- (D) caustic (E) didactic

- 5** Castillo's poetry has generated only enthusiastic response: praise from the general public and ---- from the major critics.

- (A) condemnation (B) sarcasm
- (C) plaudits (D) irony (E) pathos

- 6** Many scientists have such specialized expertise that they look only at ---- aspects of nature, but ecologists are concerned with the ---- of the natural environment.

- (A) complex..purity
- (B) detailed..paradox
- (C) isolated..totality
- (D) universal..balance
- (E) distant..erosion

- 7** Notoriously ---- regarding issues of national security, the Prime Minister dumbfounded her opponents when she ---- a defense appropriations bill they had expected her to contest.

- (A) evenhanded..muddled
- (B) compliant..conceded on
- (C) pacific..opposed
- (D) intransigent..compromised on
- (E) rancorous..railed against

- 8** Leslie thoroughly ---- the text to avoid any lawsuits that might arise because of the new obscenity law.

- (A) condensed (B) delineated
- (C) exterminated (D) expurgated
- (E) transcribed

- 9** The skepticism of some ancient philosophers ---- and helps to elucidate varieties of nihilism that appeared in the early nineteenth century.

- (A) suppresses (B) disseminates
- (C) undermines (D) confounds
- (E) foreshadows

- 10** The doctor ---- so frequently on disease-prevention techniques that her colleagues accused her of ----.

- (A) vacillated..inconsistency
- (B) sermonized..fidelity
- (C) wavered..steadfastness
- (D) experimented..inflexibility
- (E) relied..negligence

Each question below consists of a related pair of words or phrases, followed by five pairs of words or phrases labeled A through E. Select the pair that best expresses a relationship similar to that expressed in the original pair.

Example:

CRUMB : BREAD ::

- (A) ounce : unit
- (B) splinter : wood
- (C) water : bucket
- (D) twine : rope
- (E) cream : butter

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

11 RULER : LINE ::

- (A) stamp : letter
- (B) period : dot
- (C) key : door
- (D) compass : circle
- (E) thermometer : degree

12 CATNAP : SLEEP ::

- (A) exhaustion : slumber
- (B) blink : eye
- (C) snack : meal
- (D) swallow : bite
- (E) feast : banquet

13 MANAGER : STORE ::

- (A) technician : laboratory
- (B) student : school
- (C) administrator : hospital
- (D) spectator : arena
- (E) president : electorate

14 WALLET : MONEY ::

- (A) safe : lock
- (B) suitcase : clothing
- (C) camera : film
- (D) setting : jewel
- (E) car : engine

15 LUBRICATE : SMOOTHLY ::

- (A) weigh : heavily
- (B) assist : grudgingly
- (C) speak : softly
- (D) muffle : quietly
- (E) absorb : quickly

16 BIRD : AVIAN ::

- (A) plant : tropical
- (B) meat : carnivorous
- (C) snake : slippery
- (D) dog : canine
- (E) lung : amphibian

17 IRRATIONAL : LOGIC ::

- (A) unrealistic : understanding
- (B) unethical : morality
- (C) illegible : erasure
- (D) infinite : expansion
- (E) factual : verification

18 CONSTELLATION : STARS ::

- (A) construction : houses
- (B) honey : bees
- (C) map : boundaries
- (D) train : passengers
- (E) range : mountains

19 CALCULATOR : COMPUTE ::

- (A) plug : insert
- (B) clamp : grip
- (C) saddle : straddle
- (D) bridge : suspend
- (E) incinerator : warm

20 EXTRAVAGANT : SPEND ::

- (A) belligerent : fight
- (B) remarkable : surprise
- (C) charitable : receive
- (D) antagonistic : agree
- (E) persuasive : believe

21 ARCHITECT : BLUEPRINT ::

- (A) instructor : blackboard
- (B) graduate : diploma
- (C) musician : note
- (D) painter : brush
- (E) composer : score

22 WEAVE : FABRIC ::

- (A) illustrate : manual
- (B) hang : picture
- (C) sew : thread
- (D) bake : oven
- (E) write : text

23 TESTIMONY : WITNESS ::

- (A) leadership : follower
- (B) proof : theorist
- (C) expertise : authority
- (D) contradiction : investigator
- (E) confiscation : official

GO ON TO THE NEXT PAGE

The two passages below are followed by questions based on their content and on the relationship between the two 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 24-36 are based on the following passages.

*The New England town meeting, discussed in these passages, is an institution of local government that had its origins in the 1600's.*

#### Passage 1

In their remoteness from the seat of government in London, colonial New Englanders necessarily created simple new forms of self-government. The New England town meetings had an uncertain precedent in the vestry meetings of parishes in rural England, but New World circumstances gave town meetings comprehensive powers and a new vitality.

The New England town meetings, which met first weekly, then monthly, came to include all the men who had settled the town. At first, the meetings seem to have been confined to men labeled "freemen," those who satisfied the legal requirements for voting in the colony. Soon the towns developed their own sort of "freemen" — a group larger than those whom the General Court of the colony recognized as those granted rights to land. While the town meetings proved to be lively and sometimes acrimonious debating societies, they were more than that. They distributed town lands used by individuals on a rotating basis, they levied local taxes, they made crucial decisions about schools, roads, and bridges, and they elected the selectmen, constables, and others to conduct town affairs between meetings.

The laws of one colony, the Massachusetts Bay colony, gradually gave form to the town meetings. A law of 1692 required that meetings be held annually in March and enumerated the officers to be elected. A law of 1715 required the selection of moderators, gave them the power to impose fines on those who spoke without permission during meetings, and authorized any ten or more property owners to put items on the agenda. But as the movement for independence gathered momentum, a British Parliamentary Act of 1774 decreed that no town meeting should be held to discuss affairs of government without written permission from the royal governor.

#### Passage 2

Nationalistic pride in the myth of the venerable New England town meeting is entirely understandable. Nothing else so embodies the democratic ideal in the United States. Who can resist the

thought that life would be better if we the people could just run our own affairs the way they used to in the old-fashioned New England town meetings?

A mainstay of the New England mythology is the presumption that at town meetings everybody was allowed to vote. But the impression that the town meetings of old were free, democratic, and civilized is far too simplistic. For one thing, the "everybody" who could vote did not include women, Black people, American Indians, and White men who did not own property. In the seventeenth century it was not "the people" who ran the town meetings; it was the town selectmen. It was they who levied the taxes, passed the laws, punished the disorderly, and settled disputes between neighbors.

However, in early colonial Dedham, Massachusetts, there was a time when the townsfolk themselves actually made all the big decisions at town meetings. Here was the direct, participatory democracy in which Americans take such pride. A great and noble experiment, it lasted all of three years and was abandoned by 1639, soon after the town was established.

Historians who study the operation of the town meetings have revealed that the people in the colonial era exercised little control at all over their own affairs. For one thing, meetings were held so infrequently that townsfolk had little opportunity even to monitor their elected representatives. On average, two meetings were held a year. When meetings were called, it was the selectmen who set the agenda and they who controlled the discussion. Only rarely did townsfolk challenge the decisions the selectmen made.

Ultimately the power did rest with the townsfolk if they wanted it. But frequently, they did not. The people were too busy plowing their fields and clearing the forests to bother with government. More importantly, many did not think they were equipped for governing. In Dedham, people willingly left governing up to those who were well-off, old, and devout. Once elected, selectmen tended to be elected over and over again, remaining in office for decades.



It can be argued that because the selectmen were elected by the townspeople, the process was indirectly democratic. It was. The statistics show, (90) for example, that in the 1640's up to 90 percent of the adult males could vote in Dedham in town elections. Some historians go so far as to say that anybody could vote. All one had to do, they say, was show up, even if one could not meet the legal (95) property qualifications.

Perhaps, but the suffrage laws must have meant something, and through the seventeenth century, the suffrage was increasingly restricted. While upward of 90 percent of adult White males could (100) vote in Massachusetts in the 1630's, by the 1680's, says colonial historian Kenneth Lockridge, "a majority of men held no suffrage whatsoever."

**24** Passage 1 is best described as a

- (A) tactful response to a controversial question
- (B) personal assessment of a confusing situation
- (C) scathing condemnation of an outdated concept
- (D) general overview of a political institution
- (E) theoretical statement about the value of self-government

**25** Passage 1 suggests that the most significant innovation of the town meeting was the

- (A) rejection of the parish as being equivalent to the town
- (B) collective decision-making by ordinary citizens
- (C) creation of a local arena for discussion of issues of national interest
- (D) community approval of taxes and expenditures
- (E) definition of "freemen" as a new group in rural society

**26** In passage 1, the author's attitude toward the participants in town meetings is best described as

- (A) admiration of their loyalty to a political ideal
- (B) respect for their active involvement in local government
- (C) sympathy with their frustration with meeting at infrequent intervals
- (D) affection for their naïve trust in purely democratic institutions
- (E) amusement at their willingness to carry petty arguments to local officials

**27** The author of Passage 1 refers to the Parliamentary Act of 1774 to make the point that town meetings

- (A) were perceived as fostering political self-determination
- (B) were regarded as forums for class conflict
- (C) enjoyed prestige only in New England
- (D) had no counterparts in local English government
- (E) represented a long tradition of local self-rule

**28** In Passage 2, the author attempts to

- (A) compare two erroneous views
- (B) perpetuate old-fashioned historical beliefs
- (C) explain reasons underlying a poor decision
- (D) correct a misconception
- (E) argue for changing a deplorable situation

**29** In lines 39-45, the author of Passage 2 expresses which of the following for supporters of the myth?

- (A) Scorn
- (B) Impatience
- (C) Dismay
- (D) Admiration
- (E) Sympathy

**30** In lines 53-55, ("In . . . selectmen"), the author of Passage 2 distinguishes between the

- (A) general population and a small group
- (B) earliest colonizers and the earliest inhabitants
- (C) rural population and the population of towns
- (D) agricultural labor force and an aristocratic class
- (E) highly educated elite and an illiterate minority

GO ON TO THE NEXT PAGE

- 31** In Passage 2, the author describes the "experiment" (line 63) in a tone that
- (A) objectively summarizes crucial events in a typical town
  - (B) enthusiastically reveals a startling discovery
  - (C) mildly scolds historians who support inaccurate interpretations
  - (D) gently mocks false notions about town meetings
  - (E) sharply criticizes the disastrous errors of the first settlers
- 32** The discussion of Dedham (lines 58-65) serves what function in the development of the argument in Passage 2 ?
- (A) It provides a detailed examination of a case that illustrates an overall pattern.
  - (B) It refers to an expert to confirm the author's viewpoint.
  - (C) It gives an example of a fact uncovered only recently by historians.
  - (D) It compares an atypical, verified example with an inaccurate generalization.
  - (E) It contrasts a historical incident with a legendary event.
- 33** Passage 2 suggests that the statement in lines 8-10 ("The New England . . . town") should be qualified by which additional information?
- (A) The group was based on a definition set by rural English parishes.
  - (B) The classification was significantly altered by the British legislation of 1774.
  - (C) The tradition rejected the claims of female residents of Dedham to full voting rights.
  - (D) The standard did not recognize property owners as substantial contributors of tax revenues.
  - (E) The category did not include numerous adults of the community.
- 34** Which detail discussed in Passage 1 is most consistent with the generalization in lines 72-76 ("When . . . made")?
- (A) The existence of vestry meetings in English parishes
  - (B) The amenities on which tax revenues were spent
  - (C) The limit on attendance at town meetings to those designated as freemen
  - (D) The Massachusetts Bay colony law of 1715
  - (E) The Parliamentary Act of 1774
- 35** Both passages support which generalization about the seventeenth-century town meeting?
- (A) Voters were well informed about political issues.
  - (B) Participants had to have certain qualifications.
  - (C) Town leaders were frequently replaced after an election.
  - (D) Meetings discussed matters of national interest.
  - (E) The most heated debates were about taxes.
- 36** Which statement best describes a significant difference between the two interpretations of how local taxes were set and collected?
- (A) Passage 1 discusses the burden on taxpayers; Passage 2, the expenses to be met
  - (B) Passage 1 emphasizes details of the process; Passage 2, the results of the process.
  - (C) Passage 1 analyzes seventeenth-century patterns; Passage 2, eighteenth-century patterns.
  - (D) Each passage presents a different justification for local taxes.
  - (E) Each passage identifies a different part of the community as having authority over taxes.

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.

**STOP**

# Section 4

4

4

4

4

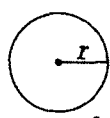
**Time—30 Minutes**  
**25 Questions**

**This section contains two types of questions. You have 30 minutes to complete both types. You may use any available space for scratchwork.**

**Notes:**

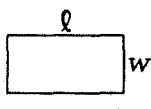
- The use of a calculator is permitted. All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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

Reference Information

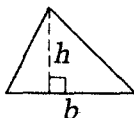


$$A = \pi r^2$$

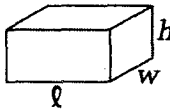
$$C = 2\pi r$$



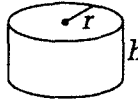
$$A = lw$$



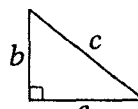
$$A = \frac{1}{2}bh$$



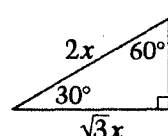
$$V = lwh$$



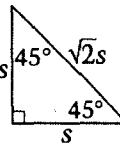
$$V = \pi r^2 h$$



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



Special Right Triangles



The number of degrees of arc in a circle is 360.  
The measure in degrees of a straight angle is 180.  
The sum of the measures in degrees of the angles of a triangle is 180.

## Directions for Quantitative Comparison Questions

Questions 1-15 each consist of two quantities in boxes, one in Column A and one in Column B. You are to compare the two quantities and on the answer sheet fill in oval

- A if the quantity in Column A is greater;  
B if the quantity in Column B is greater;  
C if the two quantities are equal;  
D if the relationship cannot be determined from the information given.

**AN E RESPONSE WILL NOT BE SCORED.**

**Notes:**

- In some questions, information is given about one or both of the quantities to be compared. In such cases, the given information is centered above the two columns and is not boxed.
- In a given question, a symbol that appears in both columns represents the same thing in Column A as it does in Column B.
- Letters such as  $x$ ,  $n$ , and  $k$  stand for real numbers.

EXAMPLES		Answers
Column A	Column B	
<b>1</b> $5^2$	20	<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D <input type="radio"/> E
		<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input type="radio"/> D <input type="radio"/> E
<b>2</b> $x$	30	
$r$ and $s$ are integers.		<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input checked="" type="radio"/> D <input type="radio"/> E
<b>3</b> $r+1$	$s-1$	

## SUMMARY DIRECTIONS FOR COMPARISON QUESTIONS

Answer: A if the quantity in Column A is greater;  
 B if the quantity in Column B is greater;  
 C if the two quantities are equal;  
 D if the relationship cannot be determined from the information given.

Column A

Column B

$$x = -2$$

$$y = -x$$

$$4x^2$$

$$8y$$

Points  $P$  and  $Q$  lie on line  $\ell$ .  
 Point  $R$  does not lie on line  $\ell$ .

The length of  $PQ$ The length of  $PR$ 

A bracelet that costs a merchant \$24 is sold to a customer at 10 percent above the merchant's cost.

The price the customer paid for the bracelet

\$26

The ratio of  $n$  to 9 is equal to the ratio of 151 to 197.

 $n$ 

9

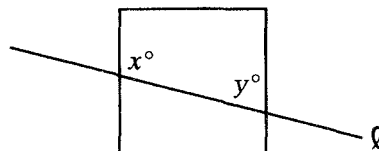
$$0 < n < 1$$

(6.5 +  $n$ ) rounded to the nearest whole number

7

Column A

Column B



Line  $\ell$  intersects the square as shown.

$$x + y$$

180

A flat coin is  $0.1d$  inches thick.

The height of a stack of 25 of these coins

 $0.25d$  inches

$c$  is the circumference of a circle with radius  $r$  and diameter  $d$ . ( $r > 0$ )

$$\frac{c}{d}$$

$$\frac{c}{r}$$

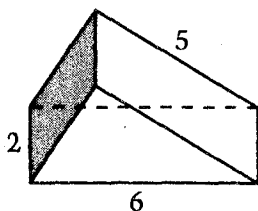
5 added to  $x$  $x$  subtracted from 5

## SUMMARY DIRECTIONS FOR COMPARISON QUESTIONS

**Answer:** A if the quantity in Column A is greater;  
 B if the quantity in Column B is greater;  
 C if the two quantities are equal;  
 D if the relationship cannot be determined from the information given.

Column A

Column B



The surface of the solid shown consists of two identical triangular faces and three different rectangular faces. The area of each triangular face is 9.

10 The perimeter of the shaded rectangular face

6

11 The number of different numbers that can be formed by rearranging the digits in the number 2,024, keeping 2 in the thousands place

The number of different numbers that can be formed by rearranging the digits in the number 2,224, keeping 2 in the thousands place

$$2x + y = 26$$

$x$  and  $y$  are integers.  
 $y < 0$

12 The greatest possible value of  $y$

-1

Column A

Column B

$$X = \{1, 3, 5, 7\}$$

$$Y = \{2, 4, 6, 8\}$$

Sixteen pairs of numbers will be formed by pairing each member of  $X$  with each member of  $Y$ . A pair will be chosen at random.

13 The probability that the sum of the pair of numbers will be even

The probability that the sum of the pair of numbers will be odd

$$a > 1$$

$$\frac{a^{16}}{a^x} = \frac{a^x}{a^4}$$

14  $x$

8

The sum of the ages of Juanita's sisters is equal to the sum of the ages of her brothers.

15 The sum of the ages of Juanita's sisters 5 years from now

The sum of the ages of Juanita's brothers 6 years from now

# Directions for Student-Produced Response Questions

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the ovals in the special grid, as shown in the examples below.

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

Write answer  
in boxes.

Grid in  
result.

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

Fraction  
line

Answer: 2.5

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

Decimal  
point

Answer: 201  
Either position is correct.

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

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

- Mark no more than one oval in any column.
- Because the answer sheet will be machine-scored, **you will receive credit only if the ovals 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 ovals 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  $2\frac{1}{2}$  must be gridded as 2.5 or  $5/2$ . (If  $2\frac{1}{2}$  is gridded, it will be interpreted as  $\frac{21}{2}$ , not  $2\frac{1}{2}$ .)

- **Decimal Accuracy:** If you obtain a decimal answer, **enter the most accurate value the grid will accommodate.** For example, if you obtain an answer such as  $0.6666\dots$ , you should record the result as .666 or .667. **Less accurate values such as .66 or .67 are not acceptable.**

Acceptable ways to grid  $\frac{2}{3} = .666\dots$

2	/	3
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2	1	1
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3	2	2
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4	3	3
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5	4	4
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2	1	1	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4	3	3	3
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	7	7	7
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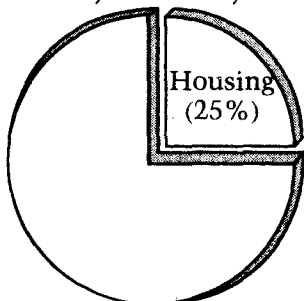
.	6	6	7
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4	3	3	3
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5	4	4	4
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6	5	5	5
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	7	7	7
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	8	8	8
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	9	9	9
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16 If  $x = 16$  is a solution to the equation  $9x - k = 130$ , where  $k$  is a constant, what is the value of  $k$ ?

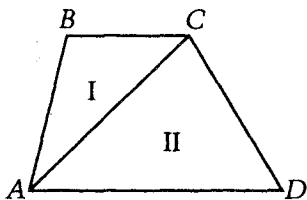
17 If  $xy = 10$ ,  $yz = 30$ , and  $y^2 = \frac{1}{9}$ , what is the value of  $xz$ ?

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Geoffrey's Monthly Budget

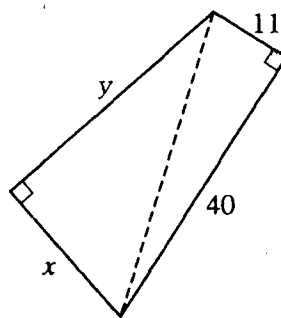


- 18 On the basis of the information in the graph above, if Geoffrey's monthly housing budget is \$650, what is the dollar amount of his total monthly budget? (Disregard the \$ sign when gridding your answer.)



- 19 In the figure above, the area of triangle I is  $\frac{1}{2}$  the area of triangle II. If  $BC \parallel AD$  and the sum of the lengths of  $BC$  and  $AD$  is 18, what is the length of  $AD$ ?

- 20 What is one possible value of  $x$  for which  $x < 2 < \frac{1}{x}$ ?



- 21 In the figure above, what is the value of  $x^2 + y^2$ ?

4

4

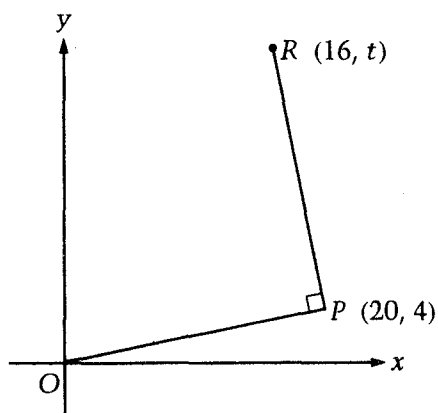
4

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4

4

- 22 For all numbers  $x$  and  $y$ , where  $x \neq y$ , let  $x \blacktriangle y$  be defined as  $\frac{x+y}{x-y}$ . If  $8 \blacktriangle w = \frac{4}{3}$ , what is the value of  $w$ ?



- 24 In the  $xy$ -plane above,  $OP = PR$ . What is the value of  $t$ ?

- 23 Roberta rode her bicycle a total of 169 miles in 13 days. Each day after the first day she rode 1 mile farther than the day before. What was the difference between the average (arithmetic mean) number of miles she rode per day and the median number of miles she rode during the 13 days?

- 25 A flock of geese on a pond were being observed continuously. At 1:00 P.M.,  $\frac{1}{5}$  of the geese flew away. At 2:00 P.M.,  $\frac{1}{8}$  of the geese that remained flew away. At 3:00 P.M., 3 times as many geese as had flown away at 1:00 P.M. flew away, leaving 28 geese on the pond. At no other times did any geese arrive or fly away. How many geese were in the original flock?



Time—15 Minutes  
12 Questions

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

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 1-12 are based on the following passage.

*The following passage is adapted from a biologist's discussion of the diversity of life on Earth (first published in 1992).*

The most wonderful mystery of life may well be the means by which it created so much diversity from so little physical matter. The biosphere, all organisms combined, makes up only about one part in ten billion of Earth's mass. It is sparsely distributed through a kilometer-thick layer of soil, water, and air stretched over a half billion square kilometers of surface. If the world were the size of an ordinary desktop globe and its surface were viewed edgewise an arm's length away, no trace of the biosphere could be seen with the naked eye. Yet life has divided into millions of species, the fundamental units, each playing a unique role in relation to the whole.

For another way to visualize the tenuousness of life, imagine yourself on a journey upward from the center of Earth, taken at the pace of a leisurely walk. For the first twelve weeks you travel through furnace-hot rock and magma devoid of life. Three minutes to the surface, five hundred meters to go, you encounter the first organisms, bacteria feeding on nutrients that have filtered into the deep water-bearing strata of the rock. You breach the surface and for ten seconds glimpse a dazzling burst of life, tens of thousands of species of microorganisms, plants, and animals within horizontal line of sight. Half a minute later almost all are gone. Two hours later only the faintest traces remain, consisting largely of people in airliners who are filled in turn with bacteria.

The hallmark of life is this: a struggle among an immense variety of organisms weighing next to nothing for a vanishingly small amount of energy. Life operates on less than 10 percent of the Sun's energy reaching Earth's surface, that portion fixed by the photosynthesis\* of green plants. That energy is then sharply discounted as it passes through the food webs from one organism to the next: very roughly 10 percent passes to the caterpillars and other herbivores that eat the plants and bacteria, 10 percent of that to the spiders and other low-level carnivores that eat the herbivores, 10 percent of the residue to the warblers and other middle-level carnivores that eat the low-level carnivores, and so on

upward to the top carnivores, which are consumed by no one except parasites and scavengers. Top carnivores, including eagles, tigers, and sharks, predestined by their perch at the apex of the food web to be big in size and sparse in number. They live on such a small portion of life's available energy as always to skirt the edge of extinction, and they are the first to suffer when the ecosystem around them starts to erode.

A great deal can be learned about biological diversity by noticing that species in the food web are arranged in two hierarchies. The first hierarchy is the energy pyramid, a straightforward consequence of the law of diminishing energy flow as noted—a relatively large amount of the Sun's energy that strikes Earth goes into the plants at the bottom. This energy then tapers to a minute quantity for the big carnivores at the top level.

The second hierarchy is a pyramid composed of biomass, the weight of organisms. By far the largest part of the physical bulk of the living world is contained in plants. The second largest amount belongs to the scavengers and other decomposers, from bacteria to fungi and termites, which together extract the last bit of fixed energy from dead tissue and waste at every level in the food web. These scavengers and decomposers then return degraded nutrients and chemicals to the plants. Each level above the plants diminishes thereafter in biomass until you come to the top carnivores, which are so scarce that the sight of one in the wild is memorable. No one has ever seen a sparrow or a squirrel, or even once a dandelion, but glimpsing a peregrine falcon or a mountain lion is a lifetime experience. And not because of their size (think of a cow) or ferocity (think of a house cat).

\* photosynthesis: a chemical process by which green plants convert the energy in sunlight into food

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- 1 The exercise involving the desktop globe (lines 8-11) is meant to
- (A) suggest that a determined student can master the complexities of ecology
  - (B) compare the diversity of life on different continents
  - (C) reiterate the comparatively small size of Earth
  - (D) emphasize that most of life on Earth is invisible to the naked eye
  - (E) illustrate the extent of the biosphere relative to the size of Earth
- 2 The reference to "ten seconds" in line 24 primarily serves to
- (A) show the consequences of a single action
  - (B) suggest the brief life spans of many species
  - (C) illustrate the space occupied by most life
  - (D) demonstrate the invulnerability of life on Earth
  - (E) indicate the frustration of snatching brief insights
- 3 In line 29, the author mentions "airliners" to illustrate that
- (A) natural biorhythms are routinely disrupted
  - (B) life on Earth is mostly limited to the surface
  - (C) humans are the most mobile species
  - (D) intelligence affects the survival of a species
  - (E) life-forms just above the surface of Earth are diverse
- 4 The author argues that the central aspect of the "hallmark of life" (line 31) is essentially
- (A) competition for energy
  - (B) competition for sunlight
  - (C) competition for space
  - (D) efficient use of energy
  - (E) an incessant flow of energy
- 5 In line 37, "discounted" most nearly means
- (A) devalued
  - (B) disregarded
  - (C) discredited
  - (D) reduced
  - (E) underestimated
- 6 In line 48, the author uses "predestined" to convey the
- (A) unavoidable influence of change in the natural world
  - (B) intensity of the instincts of carnivores
  - (C) inevitability of the size and number of certain organisms
  - (D) outcome of predictable conflicts between animals of different sizes
  - (E) consistency of behavior across species



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7. The passage indicates that which group receives the smallest amount of energy?
- (A) Green plants
  - (B) Herbivores
  - (C) Low- and middle-level carnivores
  - (D) Top-level carnivores
  - (E) Bacteria
8. The two pyramids described in the passage are similar in which of the following ways?
- I. Green plants are at the bottom.
  - II. Decomposers are at the second level.
  - III. Large carnivores are at the top.
- (A) I only
  - (B) III only
  - (C) I and II only
  - (D) I and III only
  - (E) I, II, and III
9. In lines 75-76, "No one looks twice" emphasizes that certain animal species are
- (A) unappealing
  - (B) short-lived
  - (C) timid
  - (D) small
  - (E) plentiful
10. Which animal would be the most appropriate example to add to the two special animals mentioned in lines 77-78 ?
- (A) Racehorse
  - (B) Grizzly bear
  - (C) Garden snake
  - (D) Pigeon
  - (E) Rat
11. The author assumes that a house cat (line 80) is
- (A) aggressive
  - (B) pampered
  - (C) playful
  - (D) interesting
  - (E) endangered
12. The tone of the passage is primarily one of
- (A) detached inquiry
  - (B) playful skepticism
  - (C) mild defensiveness
  - (D) informed appreciation
  - (E) urgent entreaty

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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.

**STOP**

# Section 7

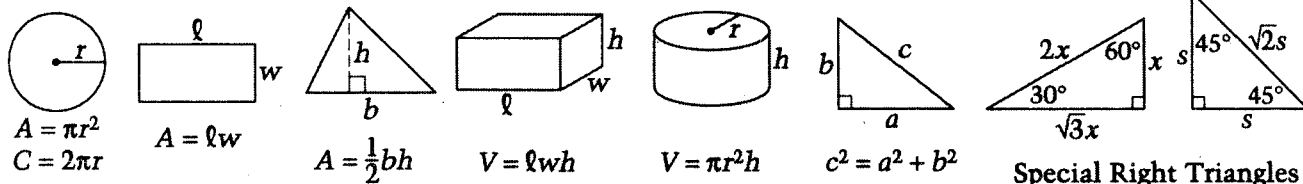
# 7

**Time—15 Minutes**  
**10 Questions**

**In this section solve each problem, using any available space on the page for scratchwork. Then decide which is the best of the choices given and fill in the corresponding oval on the answer sheet.**

**Notes:**

1. The use of a calculator is permitted. All numbers used are real numbers.
2. 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.



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

The measure in degrees of a straight angle is 180.

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

- 1** If  $x + 2y = 8$  and  $4y = 4$ , what is the value of  $x$ ?

- (A) 0
- (B) 2
- (C) 4
- (D) 6
- (E) 7

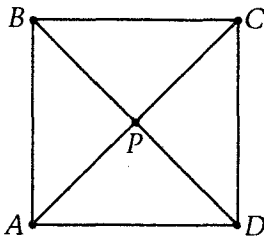
- 2** What is the least positive integer that is a multiple of 4, 15, and 18?

- (A) 30
- (B) 60
- (C) 180
- (D) 360
- (E) 1,080

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- 3 Which of the following is an expression for 10 less than the product of  $x$  and 2?

(A)  $x^2 - 10$   
 (B)  $2(x - 10)$   
 (C)  $(x + 2) - 10$   
 (D)  $10 - 2x$   
 (E)  $2x - 10$

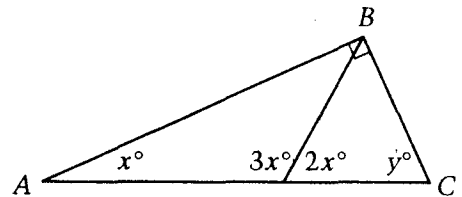


- 4 The figure above shows a square and five labeled points. What is the least number of these five points that need to be moved so that all five points lie on the same circle?

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

- 5 How many minutes are required for a car to go 10 miles at a constant speed of 60 miles per hour?

(A) 600  
 (B) 100  
 (C) 60  
 (D) 10  
 (E) 6

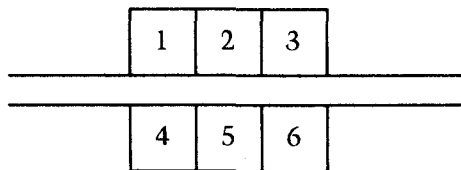


Note: Figure not drawn to scale.

- 6 In right triangle  $ABC$  above, what is the value of  $y$ ?

(A) 45  
 (B) 48  
 (C) 54  
 (D) 60  
 (E) 72

Questions 7-8 refer to the following information.



The diagram above represents six building lots along a street. There are no other residential sites in the area. Five families— $v$ ,  $w$ ,  $x$ ,  $y$ , and  $z$ —are each interested in purchasing a lot, with the following restrictions.

$v$  will occupy lot 6.

$y$  and  $z$  will live on different sides of the street.

$w$  and  $x$  will live on the same side of the street, and  $x$  will be the only next-door neighbor that  $w$  has.

One lot will remain unsold.

7 If all five families purchased lots and fulfilled all the restrictions, which of the following pairs of lots could be the ones purchased by  $y$  and  $z$ ?

- (A) 1 and 2
- (B) 1 and 3
- (C) 2 and 3
- (D) 3 and 5
- (E) 3 and 6

8 If all five families purchased lots and fulfilled all the restrictions and if  $y$  purchased lot 3, which of the following must be true?

- I.  $w$  purchased lot 1.
- II.  $x$  purchased lot 4.
- III.  $z$  purchased lot 5.

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

- 9 In a plane, lines are drawn through a given point  $O$  so that the measure of each non-overlapping angle formed about point  $O$  is  $60^\circ$ . How many different lines are there?

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

- 10 For how many different positive integer values of  $k$  does  $(kx - 6)^2 = 0$  have integer solutions?

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

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.

**STOP**

Sunday, May 2000

[illegible]

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



Score Conversion Table  
SAT I: Reasoning Test  
Sunday, May 2000  
Recentered Scale

Raw Score	Verbal Scaled Score	Math Scaled Score	Raw Score	Verbal Scaled Score	Math Scaled Score
78	800		37	510	580
77	800		36	510	570
76	800		35	500	560
75	800		34	500	550
74	800		33	490	550
73	780		32	480	540
72	760		31	480	530
71	750		30	470	520
70	740		29	470	520
69	720		28	460	510
68	710		27	460	500
67	700		26	450	490
66	690		25	450	490
65	680		24	440	480
64	680		23	430	470
63	670		22	430	470
62	660		21	420	460
61	650		20	410	450
60	640	800	19	410	440
59	640	800	18	400	440
58	630	800	17	390	430
57	620	780	16	390	420
56	620	760	15	380	410
55	610	740	14	370	400
54	610	730	13	360	390
53	600	720	12	360	390
52	590	710	11	350	380
51	590	700	10	340	370
50	580	690	9	330	360
49	580	680	8	320	350
48	570	670	7	310	340
47	570	660	6	300	320
46	560	650	5	290	310
45	550	640	4	280	300
44	550	630	3	270	290
43	540	630	2	250	270
42	540	620	1	240	260
41	530	610	0	220	240
40	530	600	-1	210	220
39	520	590	-2	200	200
38	520	590	and below		