Answer Sheet for Practice Test 5

SECTION 1

Begin your essay on this page. If you need more space, continue on the next page. Do not write outside of the essay box.

Continue on the next page if necessary.

Continuation of ESSAY Section 1 from previous page. Write below only if you need more space.

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

SECTION 2

1	A	B	C	D	E	11	A	B	C	D	E	21	A	B	C	D	E	31	A	B	C	D	E
2	A	B	C	D	E	12	A	B	C	D	E	22	A	B	C	D	E	32	A	B	C	D	E
3	A	B	C	D	E	13	A	B	C	D	E	23	A	B	C	D	E	33	A	B	C	D	E
4	A	B	C	D	E	14	A	B	C	D	E	24	A	B	C	D	E	34	A	B	C	D	E
5	A	B	C	D	E	15	A	B	C	D	E	25	A	B	C	D	E	35	A	B	C	D	E
6	A	B	C	D	E	16	A	B	C	D	E	26	A	B	C	D	E	36	A	B	C	D	E
7	A	B	C	D	E	17	A	B	C	D	E	27	A	B	C	D	E	37	A	B	C	D	E
8	A	B	C	D	E	18	A	B	C	D	E	28	A	B	C	D	E	38	A	B	C	D	E
9	A	B	C	D	E	19	A	B	C	D	E	29	A	B	C	D	E	39	A	B	C	D	E
10	A	B	C	D	E	20	A	B	C	D	E	30	A	B	C	D	E	40	A	B	C	D	E

SECTION 3

1	A	B	C	D	E	11	A	B	C	D	E	21	A	B	C	D	E	31	A	B	C	D	E
2	A	B	C	D	E	12	A	B	C	D	E	22	A	B	C	D	E	32	A	B	C	D	E
3	A	B	C	D	E	13	A	B	C	D	E	23	A	B	C	D	E	33	A	B	C	D	E
4	A	B	C	D	E	14	A	B	C	D	E	24	A	B	C	D	E	34	A	B	C	D	E
5	A	B	C	D	E	15	A	B	C	D	E	25	A	B	C	D	E	35	A	B	C	D	E
6	A	B	C	D	E	16	A	B	C	D	E	26	A	B	C	D	E	36	A	B	C	D	E
7	A	B	C	D	E	17	A	B	C	D	E	27	A	B	C	D	E	37	A	B	C	D	E
8	A	B	C	D	E	18	A	B	C	D	E	28	A	B	C	D	E	38	A	B	C	D	E
9	A	B	C	D	E	19	A	B	C	D	E	29	A	B	C	D	E	39	A	B	C	D	E
10	A	B	C	D	E	20	A	B	C	D	E	30	A	B	C	D	E	40	A	B	C	D	E

CAUTION Use the answer spaces in the grids below for Section 2 or Section 3 only if you are told to do so in your test book.

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9 10 11 12 13

14 15 16 17 18

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank. Be sure to erase any errors or stray marks completely.

SECTION 4

1 (A) (B) (C) (D) (E)	11 (A) (B) (C) (D) (E)	21 (A) (B) (C) (D) (E)	31 (A) (B) (C) (D) (E)
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9 10 11 12 13

14 15 16 17 18

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SECTION 6

1 (A) (B) (C) (D) (E)	11 (A) (B) (C) (D) (E)	21 (A) (B) (C) (D) (E)	31 (A) (B) (C) (D) (E)
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14 15 16 17 18

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SECTION 8

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SECTION 9

1 (A) (B) (C) (D) (E)	11 (A) (B) (C) (D) (E)	21 (A) (B) (C) (D) (E)	31 (A) (B) (C) (D) (E)
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SAT PRACTICE TEST 5

SECTION 1

Time: 25 Minutes—Turn to page 956 of your answer sheet to write your ESSAY.

The purpose of the essay is to have you show how well you can express and develop your ideas. You should develop your point of view, logically and clearly present your ideas, and use language accurately.

You should write your essay on the lines provided on your answer sheet. You should not write on any other paper. You will have enough space if you write on every line and if you keep your handwriting to a reasonable size. Make sure that your handwriting is legible to other readers.

You will have 25 minutes to write an essay on the assignment below. *Do not write on any other topic. If you do so, you will receive a score of 0.*

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

> One of the main purposes of education is to get students excited about the "process" behind problem solving instead of rushing into an answer and just concentrating on the final result. Often students can extract something from a problem that leads to the answer. Students can relax and think more clearly when they concentrate on the game or the wonderful process, if you will, of thinking.
>
> —Adapted from G. Gruber, "A Superlative Guide to the Hows and Wise," *Omni* Magazine

Assignment: Do you agree with the above quote? In many cases, is the problem solver concerned just about getting an answer, and not about concentrating on the "process" to get the answer? Do you agree that by not having faith in the process, he or she often does not arrive at the solution? In answering these questions, describe in your own experience, why you agree or disagree and what rewards are lost or gained when you just concentrate on an answer without being aware of or interested in the process in arriving at the answer.

DO NOT WRITE YOUR ESSAY IN YOUR TEST BOOK. You will receive credit only for what you write on your answer sheet.

BEGIN WRITING YOUR ESSAY ON PAGE 956 OF THE ANSWER SHEET.

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

SECTION 2

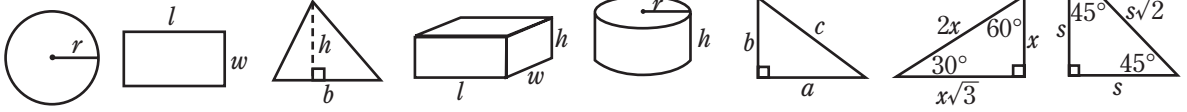
Time: 25 Minutes—Turn to Section 2 (page 958) of your answer sheet to answer the questions in this section.
20 Questions

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:

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

REFERENCE INFORMATION



$A = \pi r^2$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ *Special Right Triangles*

$C = 2\pi r$

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.

$$\begin{array}{r} 59\Delta \\ -293 \\ \hline \square 97 \end{array}$$

1. In the subtraction problem above, what digit is represented by the □?

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

2. If $\frac{a-b}{b} = \frac{1}{2}$, find $\frac{a}{b}$.

(A) $\frac{9}{2}$
(B) $\frac{7}{2}$
(C) $\frac{5}{2}$
(D) $\frac{1}{2}$
(E) $\frac{3}{2}$

GO ON TO THE NEXT PAGE

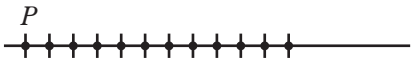
Number of pounds of force	Height object is raised
3	6 feet
6	12 feet
9	18 feet

3. In a certain pulley system, the height an object is raised is equal to a constant c times the number of pounds of force exerted. The table above shows some pounds of force and the corresponding height raised. If a particular object is raised 15 feet, how many pounds of force were exerted?

(A) $3\frac{3}{4}$
(B) 7
(C) $7\frac{1}{2}$
(D) 8
(E) 11

4. If $\frac{y}{3}$, $\frac{y}{4}$, and $\frac{y}{7}$ represent integers, then y could be

(A) 42
(B) 56
(C) 70
(D) 84
(E) 126



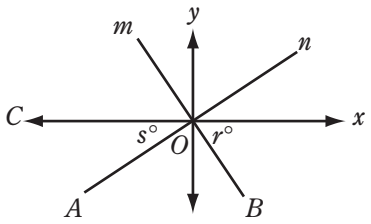
5. The above line is marked with 12 points. The distance between any 2 adjacent points is 3 units. Find the total number of points that are more than 19 units away from point P.

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

6. Given $(a + 2, a - 2) = [a]$ for all integers a, $(6, 2) =$

(A) [3]
(B) [4]
(C) [5]
(D) [6]
(E) [8]

GO ON TO THE NEXT PAGE



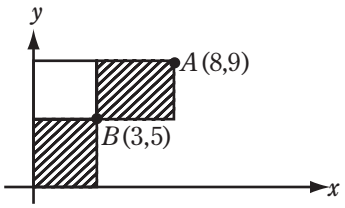
Note: Figure is not drawn to scale.

7. If $mB \perp nA$ in the figure above and COx is a straight line, find the value of $r + s$.

(A) 180
(B) 135
(C) 110
(D) 90
(E) The answer cannot be determined from the information given.

9. One out of 4 students at Ridge High School studies German. If there are 2,800 students at the school, how many students do *not* study German?

(A) 2,500
(B) 2,100
(C) 1,800
(D) 1,000
(E) 700



8. Points A and B have coordinates as shown in the figure above. Find the combined area of the two shaded rectangles.

(A) 20
(B) 26
(C) 32
(D) 35
(E) 87

10. The cost of a limousine rental is $\$y$. A group of high school seniors intend to share the cost of their prom ride by paying \$40 each. If 6 more friends go, everyone will have to pay only \$25 each. What is the value of $\$y$?

(A) \$400
(B) \$600
(C) \$800
(D) \$1,000
(E) \$1,200

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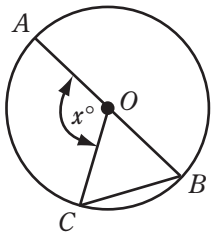
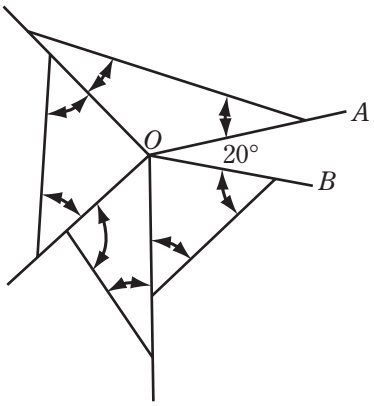


11. If AB is a diameter of circle O in the figure above, and $CB = OB$, then $\frac{x}{6} =$

(A) 60
(B) 30
(C) 20
(D) 10
(E) 5



13. If $\angle AOB = 20°$ in the figure above and O is a common vertex of the four triangles, find the sum of the measures of the marked angles in the triangles.

(A) 380
(B) 560
(C) 740
(D) 760
(E) 920

12. A camping supply store is selling an \$80 tent for \$64. If a different tent has a list price of \$200 and is discounted at $1\frac{1}{2}$ times the percent discount on the \$80 tent, what would its selling price be?

(A) \$90
(B) \$105
(C) \$120
(D) \$140
(E) \$160

14. Some integers in set X are odd.

If the statement above is true, which of the following must also be true?

(A) If an integer is odd, it is in set X.
(B) If an integer is even, it is in set X.
(C) All integers in set X are odd.
(D) All integers in set X are even.
(E) Not all integers in set X are even.

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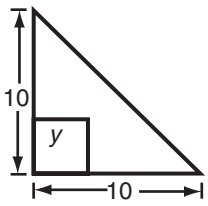
15. If $|y + 3| < 3$, then

(A) $-6 < y < 0$
(B) $3 < y$
(C) $0 < y < 3$
(D) $y = -1$
(E) $y = -2$

17. A certain printer can print at the rate of 80 characters per second, and there is an average (arithmetic mean) of 2,400 characters per page. If the printer continued to print at this rate, how many *minutes* would it take to print an M-page report?

(A) $\frac{M}{30}$
(B) $\frac{M}{60}$
(C) $\frac{M}{2}$
(D) $\frac{2}{M}$
(E) $\frac{60}{M}$



16. In the figure above, the area of the square is equal to $\frac{1}{5}$ the area of the triangle. Find the value of y, the side of the square.

(A) 2
(B) 4
(C) 5
(D) $2\sqrt{5}$
(E) $\sqrt{10}$

18. A certain satellite passed over Washington, D.C., at midnight on Friday. If the satellite completes an orbit every 5 hours, when is the next day that it will pass over Washington, D.C., at midnight?

(A) Monday
(B) Wednesday
(C) Friday
(D) Saturday
(E) Sunday

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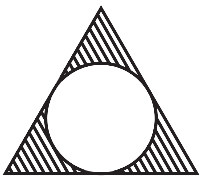
19. The price of a car is reduced by 30 percent. The resulting price is reduced by 40 percent. The two reductions are equal to one reduction of

(A) 28%
(B) 42%
(C) 50%
(D) 58%
(E) 70%



20. In the figure above, the circle is inscribed in the equilateral triangle. If the diameter of the circle is 2, what is the total shaded area?

(A) $3\sqrt{3} - \pi$
(B) $3\sqrt{3} - 4\pi$
(C) $3\sqrt{3} - \frac{3\pi}{2}$
(D) $6\sqrt{3} - \frac{3\pi}{2}$
(E) $108 - \pi$

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.

Take a 5 minute break

before starting section 3

SECTION 3

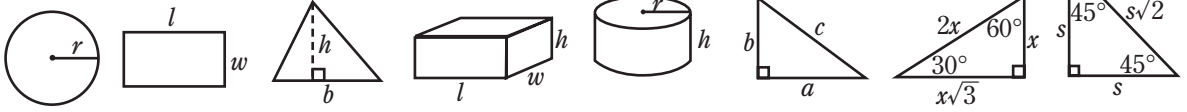
Time: 25 Minutes—Turn to Section 3 (page 958) of your answer sheet to answer the questions in this section.
20 Questions

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:

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

REFERENCE INFORMATION

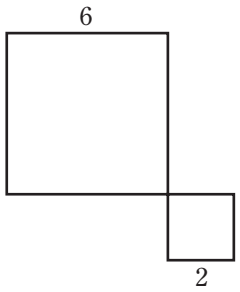


$A = \pi r^2$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ *Special Right Triangles*
$C = 2\pi r$

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. After giving \$5 to Greg, David has \$25. Greg now has $\frac{1}{5}$ as much as David does. How much did Greg start with?

(A) \$0
(B) \$5
(C) \$7
(D) \$10
(E) \$15



2. The figure above shows two squares with sides as shown. What is the ratio of the perimeter of the larger square to that of the smaller?

(A) 3 : 2
(B) 2 : 1
(C) 3 : 1
(D) 6 : 1
(E) 9 : 1

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3. A car travels 1,056 feet in 12 seconds. In feet per second, what is the average speed of the car?

(A) 98.0
(B) 78.8
(C) 85.8
(D) 84.0
(E) 88.0

4. If $2z + 1 + 2 + 2z + 3 + 2z = 3 + 1 + 2$, then $z + 4 =$

(A) 1
(B) 4
(C) 5
(D) 6
(E) 10

5. $2(w)(x)(-y) - 2(-w)(-x)(y) =$

(A) 0
(B) $-4wxy$
(C) $4wxy$
(D) $-4w^2x^2y^2$
(E) $2w^2x^2y^2$

6. What is an expression for 5 times the sum of the square of x and the square of y?

(A) $5(x^2 + y^2)$
(B) $5x^2 + y^2$
(C) $5(x + y)^2$
(D) $5x^2 + y$
(E) $5(2x + 2y)$

GO ON TO THE NEXT PAGE

7. If p and q are positive integers, x and y are negative integers, and $p > q$ and $x > y$, which of the following must be less than zero?

I. $q - p$
II. qy
III. $p + x$

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

8. If $a = 1$, $b = -2$ and $c = -2$, find the value of $\frac{b^2c}{(a-c)^2}$.

(A) $-\frac{8}{9}$
(B) $-\frac{2}{3}$
(C) $\frac{8}{9}$
(D) 8
(E) 9

9. If $y = 28j$, where j is any integer, then $\frac{y}{2}$ will always be

(A) even
(B) odd
(C) positive
(D) negative
(E) less than $\frac{y}{3}$

10. If $3a + 4b = 4a - 4b = 21$, find the value of a.

(A) 3
(B) 6
(C) 21
(D) 42
(E) The answer cannot be determined from the information given.

GO ON TO THE NEXT PAGE

11. If N is a positive integer, which of the following does *not* have to be a divisor of the sum of N, $6N$, and $9N$?

(A) 1
(B) 2
(C) 4
(D) 9
(E) 16

12. If $x = 3a - 18$ and $5y = 3a + 7$, then find $5y - x$.

(A) -11
(B) 11
(C) 18
(D) 25
(E) $6a - 11$

13. If $p + pq$ is 4 times $(p - pq)$, which of the following has exactly one value? $(pq \neq 0)$

(A) p
(B) q
(C) pq
(D) $p + pq$
(E) $p - pq$

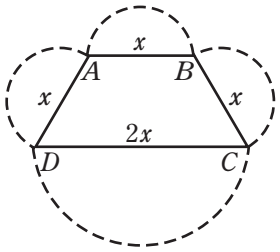
14. If $2 + \frac{1}{z} = 0$, then what is the value of $9 + 9z$?

(A) $-\frac{9}{2}$
(B) $-\frac{1}{2}$
(C) 0
(D) $\frac{9}{2}$
(E) The answer cannot be determined from the information given.

GO ON TO THE NEXT PAGE

15. How many times does the graph of $y = x^2$ intersect the graph of $y = x$?

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



17. The quadrilateral $ABCD$ is a trapezoid with $x = 4$. The diameter of each semicircle is a side of the trapezoid. What is the sum of the lengths of the 4 dotted semicircles?

(A) 8π
(B) 10π
(C) 12π
(D) 14π
(E) 20π

16. Let $wx = y$, where $wxy \neq 0$.

If both x and y are multiplied by 6, then w is

(A) multiplied by $\frac{1}{36}$
(B) multiplied by $\frac{1}{6}$
(C) multiplied by 1
(D) multiplied by 6
(E) multiplied by 36

18. $\frac{7x}{144}$ yards and $\frac{5y}{12}$ feet together equal how many inches?

(A) $\frac{7x}{12} + \frac{5y}{4}$
(B) $\frac{7x}{12} + 5y$
(C) $\frac{7x}{4} + 5y$
(D) $\frac{7x}{4} + 60y$
(E) $7x + \frac{5}{4}y$

GO ON TO THE NEXT PAGE

19. If $x < 0$ and $y < 0$, which of the following must always be positive?

I. $x \times y$
II. $x + y$
III. $x - y$

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

20. Given that $a + 3b = 11$ and a and b are positive integers, what is the largest possible value of a?

(A) 4
(B) 6
(C) 7
(D) 8
(E) 10

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—Turn to Section 4 (page 959) of your answer sheet to answer the questions in this section.
24 Questions

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

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

EXAMPLE:

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

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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Athens was ruled not by kings and emperors as was common among other _____ at the time, but by a citizenry, which _____ fully in the affairs of the city.

(A) committees…cooperated
(B) tribes…engaged
(C) cities…revolutionized
(D) populations…applied
(E) societies…participated

2. Fossils are _____ in rock formations that were once soft and have _____ with the passage of time.

(A) abolished…corresponded
(B) interactive…communicated
(C) preserved…hardened
(D) created…revived
(E) discounted…deteriorated

3. The social-cultural trends of the 1960s _____ not only the relative affluence of the postwar period but also the coming to maturity of a generation that was a product of that _____.

(A) dominated…movement
(B) reflected…prosperity
(C) accentuated…depression
(D) cautioned…decade
(E) accepted…revolution

4. Rotation of crops helps to _____ soil fertility and soil usefulness for a long period of time.

(A) conserve
(B) disperse
(C) employ
(D) research
(E) shorten

5. Some illnesses, such as malaria, that have been virtually eliminated in the United States are still _____ in many places abroad.

(A) discussed
(B) prevalent
(C) scarce
(D) unknown
(E) hospitalized

6. With lack of _____, almost anyone can develop the disease we call alcoholism, just as any of us can contract pneumonia by _____ exposing ourselves to its causes.

(A) advice…carefully
(B) control…foolishly
(C) opportunity…knowingly
(D) sympathy…fortunately
(E) conscience…happily

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7. Use of air conditioners and other electrical apparatus had to be _____ that summer because of the _____ of the generating system.

(A) postulated…reaction
(B) curtailed…inefficiency
(C) implemented…residuals
(D) augmented…responsiveness
(E) manipulated…intensity

8. The Bavarians consider beer their national beverage, yet at the same time they do not view it as a drink but rather as _____ bread—a staple food.

(A) fresh
(B) liquid
(C) stale
(D) bitter
(E) costly

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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 9–10 are based on the following passage.

Despite the many categories of the historian, there are only two ages of man. The first age, the age from the beginning of recorded time to the present, is the age of the caveman. It is the age of war. It is today. The second age, still only a prospect, is the age of civilized man. The test of civilized man will be represented by his ability to use his inventiveness for his own good by substituting world law for world anarchy. That second age is still within the reach of the individual in our time. It is not a part-time job, however. It calls for total awareness, total commitment.

9. The title below that best expresses the ideas of this passage is:

(A) The Historian at Work
(B) The Dangers of All-Out War
(C) The Power of World Anarchy
(D) Mankind on the Threshold
(E) The Decline of Civilization

10. The author's attitude toward the possibility of man's reaching an age of civilization is one of

(A) limited hope
(B) complete despair
(C) marked uncertainty
(D) complacency
(E) anger

Questions 11–12 are based on the following passage.

Readers in the past seem to have been more patient than the readers of today. There were few diversions, and they had more time to read novels of a length that seems to us now inordinate. It may be that they were not irritated by the digressions and irrelevances that interrupted the narration. But some of the novels that suffer from these defects are among the greatest that have ever been written. It is deplorable that on this account they should be less and less read.

11. The title below that best expresses the ideas of this passage is:

(A) Defects of Today's Novels
(B) Novel Reading Then and Now
(C) The Great Novel
(D) The Impatient Reader of Novels
(E) Decline in Education

12. The author implies that

(A) authors of the past did not use narration to any extent
(B) great novels are usually long
(C) digressions and irrelevances are characteristic of modern novels
(D) readers of the past were more capable
(E) people today have more pastimes than they formerly had

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Questions 13–24 are based on the following passage.

This passage describes the relationship between age and income throughout various periods of American history and the effects this trend will have on the various population groups in the future.

The relationship between age and income is only casually appreciated by recent theories on the purported redistribution of income. It is known, of course, that the average person's income begins to decline after he is fifty-five years of age, and that it declines sharply after sixty-five. For example, as early as 1957, 58 percent of the spending units headed by persons sixty-five years and older earned less than $2,000. The relationship between old age and low income has often been considered a reflection of sociological rather than economic factors—and therefore not to be included in any study of the economy. Actually, the character of the relationship is too integrated to be dissected. However, its significance is mounting with the increase in the number of older persons. The lowest-income groups include a heavy concentration of older persons—in 1957, one-third of all spending units in the $0–$2,000 class were headed by persons sixty-five years and older; in 1948, it was 28 percent.

But in economic planning and social policy, it must be remembered that, with the same income, the sixty-five-or-more spending unit will not spend less or need less than the younger spending unit, even though the pressure to save is greater than that on the young. The functional ethos of our economy dictates that the comparatively unproductive old-age population should consume in accordance with their output rather than their requirements. Most social scientists have accepted these values; they have assumed that the minimum economic needs of the aged should be lower than those of the younger family. But it is precisely at retirement that personal requirements and the new demands of leisure call for an even larger income if this period is to be something more enjoyable than a wait for death.

The relationship between age and income is seen most clearly in the unionized blue-collar worker. Except for layoffs, which his seniority minimizes, and wage increments for higher productivity, awarded in many industries, his income range is determined by his occupation. But within that income range, the deciding factor is the man's age. After forty-five, the average worker who loses his job has more difficulty in finding a new one. Despite his seniority, the older worker is likely to be downgraded to a lower-paying job when he can no longer maintain the pace set by younger men. This is especially true of unskilled and semiskilled workers.

The early and lower income period of a person's working life, during which he acquires his basic vocational skills, is most pronounced for the skilled, managerial, or professional worker. Then, between the ages of twenty-five and fifty, the average worker receives his peak earnings. Meanwhile, his family expenses rise, and there are children to support and basic household durables to obtain. Although his family's income may rise substantially until he is somewhere between thirty-five and forty-five, per capita consumption may drop at the same time. For the growing, working-class family, limited in income by the very nature of the breadwinner's occupation, the economic consequences of this parallel rise in age, income, and obligations are especially pressing. Many in the low-income classes are just as vulnerable to poverty during middle age, when they have a substantially larger income, as in old age. As family obligations finally do begin declining, so does income. Consequently, most members of these classes never have an adequate income.

Thus we see that, for a time, increased age means increased income, and therefore a probable boost in income-tenth position. Although there are no extensive data in the matter, it can be confidently asserted that the higher income-tenths have a much greater representation of spending units headed by persons aged thirty-five to fifty-five than do the lower income-tenths. This is demonstrably the case among the richest 5 percent of the consumer units. The real question is: To what extent does distribution of income-tenths within a certain age group deviate from distribution of income-tenths generally? Although information is not as complete as might be desired, there is more than enough to make contingent generalizations. Detailed data exist on income distribution by tenths and by age for 1935–36 and 1948, and on income-size distribution by age for the postwar years. They disclose sharp income inequalities within every age group (although more moderate in the eighteen-to-twenty-five category)—inequalities that closely parallel the overall national income pattern. The implication is clear: A spending unit's income-tenth position *within his age category* varies much less, if at all, and is determined primarily by his occupation.

In other words, in America, the legendary land of economic opportunity where any man can work his way to the top, there is only slight income mobility outside the natural age cycle of rising, then falling income. Since most of the sixty-five-and-over age group falls into the low-income brackets and constitutes the largest segment of the $0–$2,000 income class, it is of obvious importance in analyzing future poverty in the United States to examine the growth trends of this group. The sixty-five-and-over population composed 4.0 percent of the total population in 1900, 5.3 percent in 1930, and 8.4 percent in 1955 and will reach an estimated 10.8 percent in 2010. Between 1900 and 2010, the total national population is expected to increase 276 percent, but those from ages forty-five through sixty-four are expected to increase 416 percent, and those sixty-five and over are expected to increase 672 percent. Between 1990 and 2010, the population aged eighteen to twenty-five is also expected to grow far more rapidly than the middle-aged population. With the more rapid expansion of these two low-income groups, the young and the old, in the years immediately ahead, an increase in the extent of poverty is probable.

GO ON TO THE NEXT PAGE

13. According to the passage, most social scientists erroneously assume that

(A) personal expenses increase with the age of the spending unit
(B) the needs of the younger spending unit are greater than those of the aged
(C) the relationship between old age and low income is an economic and not a sociological problem
(D) members of the old-age population should consume in accordance with their requirements
(E) leisure living requires increased income

14. The word "appreciated" in line 2 most nearly means

(A) had artistic interest
(B) increased in value
(C) had curiosity
(D) had gratitude
(E) understood

15. It can be inferred that in the 35–55 age category

(A) income-tenth positions vary greatly
(B) income-tenth positions vary very little
(C) earning potential does not resemble the overall national income pattern
(D) occupations have little bearing on the income-tenth position
(E) there is great mobility between income-tenth positions

16. The author believes which of the following?

I. The aged will continue to increase as a percentage of the total population.
II. Income inequalities decrease with increasing age.
III. Managerial and professional workers have greater income mobility than blue-collar workers.

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

17. In the passage the term "functional ethos" in line 23 means

(A) national group
(B) ethnic influence
(C) prevailing ideology
(D) biased opinion
(E) practical ethics

18. The article states that the old-age population

(A) has increased because of longer life expectancy
(B) exceeds all but the 18–25 age group in growth rate
(C) is well represented among the higher income-tenths
(D) is increasing as a percentage of the low income-tenths
(E) has its greatest numbers among the middle-income group

19. According to the author, aside from the natural age cycle, economic opportunity in America is greatly limited by

I. occupation
II. income inequality within every group
III. class

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

20. The word "ethos" in line 23 most nearly means

(A) the character of a group of people
(B) economic–sociological ramifications
(C) the productivity of all age groups
(D) the management of large corporations
(E) the social scientists who deal with the economy

21. According to the passage, the older, unionized blue-collar workers are

(A) assured constant salary until retirement
(B) given preference over new workers because of seniority
(C) likely to receive downgraded salary
(D) more susceptible to layoff after 40
(E) encouraged to move to slower-paced but equal-paying jobs

GO ON TO THE NEXT PAGE

22. The article states that the average worker finds that

(A) as family obligations begin escalating, income begins to decline
(B) he reaches economic stability at middle age because of the parallel rise in age, obligations, and income
(C) he earns least while he is acquiring vocational skills
(D) he reaches peak earning power between the ages of 40 and 65
(E) his wage gains coincide with the decline of family needs

23. It can be inferred that one could most accurately predict a person's income from his or her

(A) age
(B) natural age cycle
(C) occupation
(D) occupation and age
(E) seniority position

24. Which lines in the passage illustrate the author's sarcasm?

(A) lines 19–23
(B) lines 45–48
(C) lines 64–66
(D) lines 86–89
(E) lines 104–107

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.

Take a 1 minute break

before starting section 5

SECTION 5

Time: 25 Minutes—Turn to Section 5 (page 959) of your answer sheet to answer the questions in this section.
35 Questions

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

Ⓐ ● Ⓒ Ⓓ Ⓔ

1. Joe couldn't wait for his return to his home after being in the army for two years.

(A) Joe couldn't wait for his return to his home
(B) There was a strong desire on Joe's part to return home
(C) Joe was eager to return home
(D) Joe wanted home badly
(E) Joe arranged to return home

2. Trash, filth, and muck are clogging the streets of the city, and that's not all, the sidewalks are full of garbage.

(A) that's not all, the sidewalks are full of garbage
(B) another thing: garbage is all over the sidewalks
(C) the garbage cans haven't been emptied for days
(D) in addition, garbage is lying all over the sidewalks
(E) what's more, the sidewalks have garbage that is lying all over them

3. Tired and discouraged by the problems of the day, Myra decided to have a good dinner, and then lie down for an hour, and then go dancing.

(A) Myra decided to have a good dinner, and then lie down for an hour, and then go dancing
(B) Myra decided to have a good dinner, lying down for an hour, and then dancing
(C) Myra decided to have a good dinner, lie down for an hour, and then dancing
(D) Myra decided to have a good dinner, lay down for an hour, and then dance
(E) Myra decided to have a good dinner, lie down for an hour, and then go dancing

4. I am not certain in respect to which courses to take.

(A) in respect to which courses
(B) about which courses
(C) which courses
(D) as to the choice of which courses
(E) for which courses I am

GO ON TO THE NEXT PAGE

5. The people of the besieged village had no doubt that the end was drawing near.

(A) that the end was drawing near
(B) about the nearness of the end
(C) it was clear that the end was near
(D) concerning the end's being near
(E) that all would die

6. There isn't a single man among us who is skilled in the art of administering first aid.

(A) who is skilled in the art of administering first aid
(B) who knows how to administer first aid
(C) who knows the administration of first aid
(D) who is a first-aid man
(E) who administers first aid

7. This is the hole that was squeezed through by the mouse.

(A) that was squeezed through by the mouse
(B) that the mouse was seen to squeeze through
(C) the mouse squeezed through it
(D) that the mouse squeezed through
(E) like what the mouse squeezed through

8. She soundly fell asleep after having finished the novel.

(A) She soundly fell asleep
(B) She decided to sleep
(C) She went on to her sleep
(D) She fell to sleep
(E) She fell fast asleep

9. This is one restaurant I won't patronize because I was served a fried egg by the waitress that was rotten.

(A) I was served a fried egg by the waitress that was rotten
(B) I was served by the waitress a fried egg that was rotten
(C) a fried egg was served to me by the waitress that was rotten
(D) the waitress served me a fried egg that was rotten
(E) a rotten fried egg was served to me by the waitress

10. Watching the familiar story unfold on the screen, he was glad that he read the book with such painstaking attention to detail.

(A) that he read the book with such painstaking attention to detail
(B) that he had read the book with such painstaking attention to detail
(C) that he read the book with such attention to particulars
(D) that he read the book with such intense effort
(E) that he paid so much attention to the plot of the book

11. If anyone requested tea instead of coffee, it was a simple matter to serve it to them from the teapot at the rear of the table.

(A) it was a simple matter to serve it to them
(B) it was easy to serve them
(C) it was a simple matter to serve them
(D) it was a simple matter to serve it to him or to her
(E) that person could serve himself or herself

GO ON TO THE NEXT PAGE

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

EXAMPLE:

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

Ⓐ ● Ⓒ Ⓓ Ⓔ

12. Since (A) we first started high school, there has been (B) great competition for grades between (C) him and I (D). No error (E).

13. Many people in the suburbs scarcely (A) know about (B) the transportation problems that (C) city dwellers experience every day (D). No error (E).

14. The subject of the evening editorial was us (A) instructors who (B) have refused (C) to cross the picket lines of the striking (D) food service workers. No error (E).

15. After the contestants had completed (A) their speeches, I knew that the prize would go to he (B) whom (C) the audience had given a standing (D) ovation. No error (E).

16. Falsely accused of a triple murder (A) and imprisoned (B) for 19 years, Ruben (Hurricane) Carter, a former boxer, was freed (C) when a federal judge declared him (D) guiltless. No error (E).

17. Your math instructor would have been happy (A) to give you a makeup examination if you would have (B) gone to him and explained (C) that your parents were hospitalized (D). No error (E).

18. The child (A) asking (B) a difficult question was perhaps more shocking to the speaker than (C) to the child's (D) parents. No error (E).

19. Now (A) that the pressure of selling (B) the house and packing our belongings is over (C), we can look forward (D) to moving to our new home in California. No error (E).

20. My grandmother leads (A) a more active life than (B) many other retirees who (C) are younger than her (D). No error (E).

21. I appreciate your (A) offering to change (B) my flat tire, but I would rather (C) have you drive me to my meeting so that (D) I will be on time. No error (E).

22. The novelists who (A) readers choose (B) as (C) their favorites are not always the most (D) skilled writers. No error (E).

GO ON TO THE NEXT PAGE

23. The problem of how to deal (A) with all the mosquitoes (B) disturb (C) many residents (D) of the Tropics. No error (E).

24. The family's (A) only son could of (B) gone (C) to college, but he decided to join the army after he graduated from (D) high school. No error (E).

25. Yesterday (A) at the racetrack, many people (B) were fearful of (C) betting on the horse who (D) had fallen in the last race. No error (E).

26. If someone wants to buy all (A) the antiques that (B) I have for the rummage sale, then (C) they (D) should make me a reasonable offer. No error (E).

27. The man who (A) Mexican authorities believe to be (B) the country's number one drug trafficker (C) has been (D) arrested in a Pacific resort area. No error (E).

28. While (A) her mother was inside the house talking (B) on the phone, the child fell off of (C) the unscreened (D) porch. No error (E).

29. The racehorse ran swifter (A) in today's (B) race than he had run (C) in his practice sessions last week (D). No error (E).

GO ON TO THE NEXT PAGE

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]Lampe-Pigeon is the charming name for a tall kerosene lamp, more than nine and one-half inches in height, created more than 100 years ago for use in the wine caves of France. [2]Its diminutive size makes it suitable for being used on a mantel, as a centerpiece in lieu of candles, or even bracketed as a wall sconce. [3]The brass lamp, which contains within it a glass globe, is still being handmade by the same company, though one is more likely to see it in a French home these days than in a cave. [4]And, of course, it would be a handy source of light in the event of a power failure. [5]Other antique-type lamps have been manufactured and they do not have the elegance or simplicity of the Lampe-Pigeon. [6]Many people prefer more modern lamps especially those of the halogen variety.

30. What should be done with sentence 3?

(A) It should end after the word company.
(B) It should remain as it is.
(C) It should be placed after sentence 4.
(D) It should follow sentence 1.
(E) It should introduce the passage.

31. Sentence 1 would be more logical if it read, Lampe-Pigeon is the charming name for

(A) a tall kerosene lamp, measuring more than nine and one-half inches, created…
(B) a kerosene lamp, although more than nine and one-half inches tall, created…
(C) a more than nine-and-one-half-inch-tall kerosene lamp, created…
(D) a tall, more than nine-and-one-half inch kerosene lamp, created…
(E) a kerosene lamp, of a height of more than nine and one-half inches, created…

32. The phrase for being used in sentence 2 should be

(A) changed to for use
(B) left as it is
(C) changed to for one to use it
(D) changed to to being used
(E) changed to as a piece used on a mantel

33. Sentence 3 would read more smoothly were it to begin

(A) The glass globed brass lamp…
(B) The brass lamp with a glass globe…
(C) The glass globe, found in the brass lamp…
(D) as it does now
(E) The brass lamp, inside of which is a glass globe…

34. What should be done with sentence 6?

(A) It should be left as it is.
(B) It should be deleted from the paragraph.
(C) It should be placed before sentence 5.
(D) It should be placed before sentence 4.
(E) It should be placed before sentence 3.

35. In sentence 5,

(A) "manufactured" should be changed to "produced"
(B) "Lampe-Pigeon" should be changed to "lamp in question"
(C) "elegance and simplicity" should be changed to "modernization"
(D) "and" should be changed to "but"
(E) the sentence should remain as it is

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

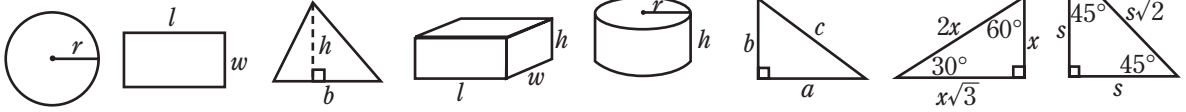
Time: 25 Minutes—Turn to Section 6 (page 960) of your answer sheet to answer the questions in this section.
18 Questions

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:

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

REFERENCE INFORMATION

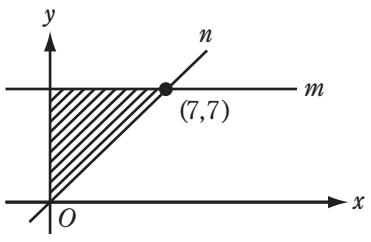


$A = \pi r^2$ $C = 2\pi r$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ *Special Right Triangles*

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

1. In the equation $5\sqrt{x} + 14 = 20$, the value of x is

(A) $\sqrt{\frac{6}{5}}$
(B) $\frac{34^2}{25^2}$
(C) $6 - \sqrt{5}$
(D) $\frac{6}{5}$
(E) $\frac{36}{25}$



2. In the figure above, m is parallel to the x-axis. All of the following points lie in the shaded area EXCEPT

(A) (4,3)
(B) (1,2)
(C) (5,6)
(D) (4,5)
(E) (2,5)

GO ON TO THE NEXT PAGE

3. At Lincoln County High School, 36 students are taking either calculus or physics or both, and 10 students are taking both calculus and physics. If there are 31 students in the calculus class, how many students are in the physics class?

(A) 14
(B) 15
(C) 16
(D) 17
(E) 18

4. Mr. Simmons stated that if $a^2 > b^2$ where a and b are real, then it follows that $a > b$. Mr. Simmons's statement would be refuted if $(a,b) =$

(A) (2,3)
(B) (3,2)
(C) (4,−2)
(D) (−4,−2)
(E) (−2,−3)

5. Which of the following is always true for real numbers a, b, and c?

I. $\sqrt{a+b} = \sqrt{a} + \sqrt{b}$
II. $a^2 + b^2 = (a+b)^2$
III. $a^b + a^c = a^{(b+c)}$

(A) I only
(B) II only
(C) III only
(D) I, II, and III
(E) neither I, II, or III

Question 6 refers to the following:

$R = \{x : 1 \geq x \geq -1\}$
$S = \{x : x \geq 1\}$

6. The number of elements that is (are) common to both R and S is (are)

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

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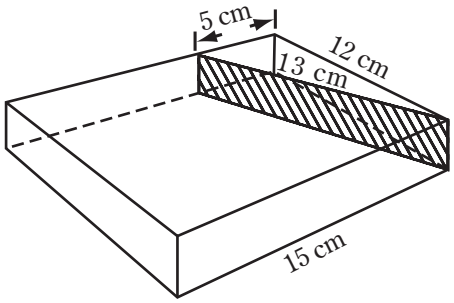
7. Two lines in a plane are represented by $y = x - 1$ and $2x + 5y = 9$. The coordinates of the point at which the lines intersect are

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



8. The rectangular box above has a rectangular dividing wall inside, as shown. The dividing wall has an area of 39 cm^2. What is the volume of the trapezoid-shaped box?

(A) 90 cm^3
(B) 180 cm^3
(C) 360 cm^3
(D) 450 cm^3
(E) 540 cm^3

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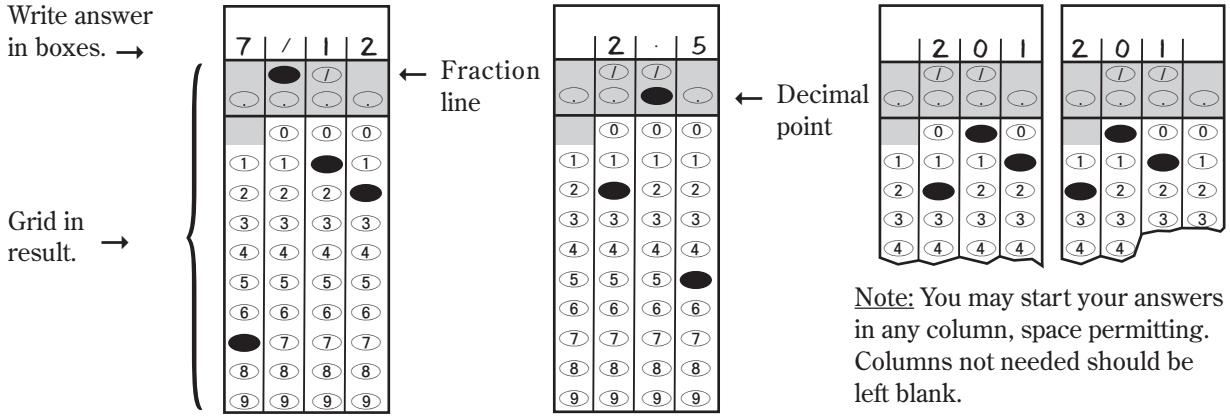
Directions: For Student-Produced Response questions 9–18, use the grids at the bottom of the answer sheet page on which you have answered questions 1–8.

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

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

Answer: 2.5

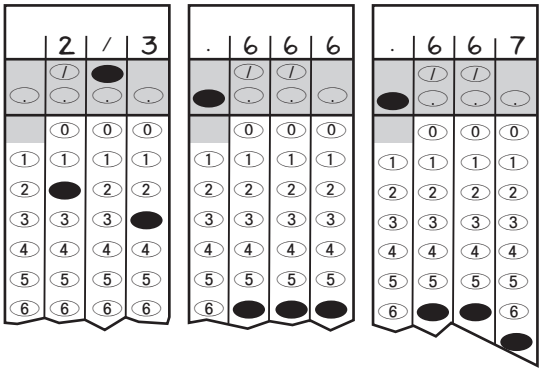
Answer: 201
Either position is correct.



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 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…, you should record the result as .666 or .667. **Less accurate values such as .66 or .67 are not acceptable.**

  Acceptable ways to grid $\frac{2}{3}$ = .6666…:



9. $\left(\frac{1}{2}-\frac{1}{3}\right)+\left(\frac{1}{3}-\frac{1}{4}\right)+\left(\frac{1}{4}-\frac{1}{5}\right)+\left(\frac{1}{5}-\frac{1}{6}\right)+\left(\frac{1}{6}-\frac{1}{7}\right)+\left(\frac{1}{7}-\frac{1}{8}\right)+\left(\frac{1}{8}-\frac{1}{9}\right)$ is equal to what value?

10. If the first two elements of a number series are 1 and 2, and if each succeeding term is found by multiplying the two terms immediately preceding it, what is the fifth element of the series?

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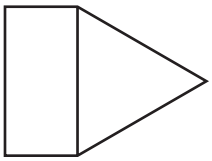
11. If p is $\frac{3}{5}$ of m and if q is $\frac{9}{10}$ of m, then, when $q \neq 0$, the ratio $\frac{p}{q}$ is equal to what value?

12. If the average (arithmetic mean) of 40, 40, 40, and z is 45, then find the value of z.

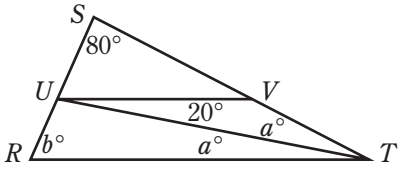


13. In the figure above, the perimeter of the equilateral triangle is 39 and the area of the rectangle is 65. What is the perimeter of the rectangle?

Game	*Darrin*	*Tom*
1	69	43
2	59	60
3	72	55
4	70	68
5	78	73
Totals	348	299

14. Darrin and Tom played five games of darts. The table above lists the scores for each of the games. By how many points was Tom behind Darrin at the end of the first four games?

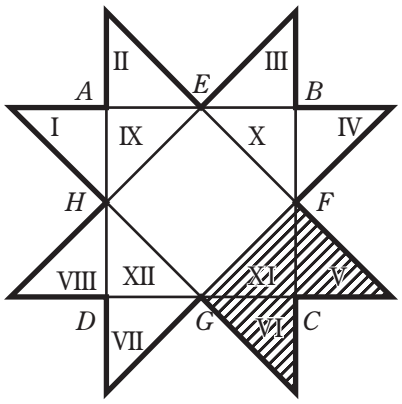
15. A box contains 17 slips of paper. Each is labeled with a different integer from 1 to 17 inclusive. If 5 even-numbered slips of paper are removed, what fraction of the remaining slips of paper are even-numbered?



Note: Figure is not drawn to scale.

16. In ΔRST above, $UV \parallel RT$. Find b.

17. Riley has earned \$440 in 8 days. If she continues to earn at the same daily rate, in how many *more* days will her total earnings be \$990?



18. The areas of triangles I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII are the same. If the region outlined by the heavy line has area = 256 and the area of square $ABCD$ is 128, determine the shaded area.

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.

Take a 5 minute break

before starting section 7

SECTION 7

Time: 25 Minutes—Turn to Section 7 (page 960) of your answer sheet to answer the questions in this section.
24 Questions

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

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

EXAMPLE:

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

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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. The Forest Service warned that the spring forest fire season was in full swing and urged that _____ caution be exercised in wooded areas.

(A) moderate
(B) scant
(C) customary
(D) extreme
(E) reasonable

2. The Classical Age of Greek art ended with the defeat of Athens by Sparta; the _____ effect of the long war was the weakening and _____ of the Greek spirit.

(A) cumulative…corrosion
(B) immediate…storing
(C) imagined…cooperation
(D) delayed…rebuilding
(E) intuitive…cancellation

3. Mia, bored by even the briefest periods of idleness, was _____ switching from one activity to another.

(A) hesitantly
(B) lazily
(C) slowly
(D) surprisingly
(E) continually

4. The bee _____ the nectar from the different flowers and then _____ the liquid into honey.

(A) consumes…conforms
(B) observes…pours
(C) rejects…solidifies
(D) crushes…injects
(E) extracts…converts

5. The plan turned out to be _____ because it would have required more financial backing than was available.

(A) intractable
(B) chaotic
(C) irreversible
(D) untenable
(E) superfluous

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 6–9 are based on the following passages.

Passage 1

All the arts contain some preposterous fiction, but the theatre is the most preposterous of all. Imagine asking us to believe that we are in Venice in the sixteenth century, that Mr. Billington is a Moor, and that he is about to stifle the much admired Miss Huckaby with a pillow; and imagine trying to make us believe that people ever talked in blank verse—more than that: that people were ever so marvelously articulate. The theatre is a lily that inexplicably arises from a jungle of weedy falsities. Yet it is precisely from the tension produced by all this absurdity that it is able to create such poetry, power, enchantment, and truth.

Passage 2

The theater is a venue for the most realistic and direct fiction ever imagined. So many of the contemporary plays make us realize how we are living our lives and perhaps how we should change them. From these "reality shows" we can feel all the poverty, despair, and unfairness in our world, which then affords us the opportunity for change for the better.

6. Which statement best illustrates the author's meaning when he says, "The theatre is a lily that inexplicably arises from a jungle of weedy falsities"?

(A) The theatre is the "flower" among the arts.
(B) The theatre helps to raise public taste to a higher level.
(C) The theatre can create an illusion of truth from improbable situations.
(D) The theatre has overcome the unsavory reputation of earlier periods.
(E) In the theatre, real acting talent can be developed from unpromising material.

7. The author's feeling toward contemporary plays is that they

(A) have no value for the spectator
(B) can be appreciated by everyone
(C) elicit the negative aspects of life
(D) have a long-lasting effect on us
(E) do not deal with poetry or truth

8. The two passages are similar in that

(A) both describe specific examples from specific plays
(B) both are completely objective in their respective arguments
(C) both authors believe that they depict the accuracy of the particular time
(D) both authors show the same intensity and passion in their arguments
(E) both show that something positive can come out of something negative

9. Which of the following is true?

(A) One author would not disagree with the other's premise.
(B) The author of Passage 1 despises all characters in 16th-century plays.
(C) The author of Passage 1 believes that people in the 16th century were very articulate.
(D) Analogies to objects and places are a literary device used in only one passage.
(E) The author of Passage 2 believes that the theater compromises reality.

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Questions 10–15 are based on the following passage.

The following passage deals with adjustment to one's surroundings and the terms and theory associated with such adjustment.

As in the case of so many words used by the biologist and the physiologist, the word acclimatization is hard to define. With increases in knowledge and understanding, meanings of words change. Originally, the term acclimatization was taken to mean only the ability of human beings or animals or plants to accustom themselves to new and strange climatic conditions, primarily altered temperature. A person or a wolf moves to a hot climate and is uncomfortable there, but after a time is better able to withstand the heat. But aside from temperature, there are other aspects of climate. A person or an animal may become adjusted to living at higher altitudes than those it was originally accustomed to. At really high altitudes, such as that which aviators may be exposed to, the low atmospheric pressure becomes a factor of primary importance. In changing to a new environment, a person may, therefore, meet new conditions of temperature or pressure, and in addition may have to contend with different chemical surroundings. On high mountains, the amount of oxygen in the atmosphere may be relatively small; in crowded cities, a person may become exposed to relatively high concentrations of carbon dioxide or even carbon monoxide and in various areas may be exposed to conditions in which the water content of the atmosphere is extremely high or extremely low. Thus in the case of humans, animals, and even plants, the concept of acclimatization includes the phenomena of increased toleration of high or low temperature, of altered pressure, and of changes in the chemical environment.

Let us define acclimatization, therefore, as the process by which an organism or a part of an organism becomes inured to an environment that is normally unsuitable to it or lethal for it. By and large, acclimatization is a relatively slow process. The term should not be taken to include relatively rapid adjustments such as those our sense organs are constantly making. This type of adjustment is commonly referred to by physiologists as "adaptation." Thus our touch sense soon becomes accustomed to the pressure of our clothes and we do not feel them; we soon fail to hear the ticking of a clock; obnoxious odors after a time fail to make much impression on us, and our eyes in strong light rapidly become insensitive.

The fundamental fact about acclimatization is that all animals and plants have some capacity to adjust themselves to changes in their environment. This is one of the most remarkable characteristics of living organisms, a characteristic for which it is extremely difficult to find explanations.

10. According to the reading selection, all animals and plants

(A) have an ability for acclimatization
(B) can adjust to only one change in the environment at a time
(C) are successful in adjusting themselves to changes in their environments
(D) can adjust to natural changes in the environment but not to artificially induced changes
(E) that have once acclimatized themselves to an environmental change can acclimatize themselves more rapidly to subsequent changes

11. It can be inferred from the reading selection that

(A) every change in the environment requires acclimatization by living things
(B) plants and animals are more alike than they are different
(C) biologists and physiologists study essentially the same things
(D) the explanation of acclimatization is specific to each plant and animal
(E) as science develops, the connotation of terms may change

12. According to the reading selection, acclimatization

(A) is similar to adaptation
(B) is more important today than it formerly was
(C) involves positive as well as negative adjustment
(D) may be involved with a part of an organism but not with the whole organism
(E) is more difficult to explain with the more complex present-day environment than formerly

13. By inference from the reading selection, which one of the following would *not* require the process of acclimatization?

(A) an ocean fish placed in a lake
(B) a skin diver making a deep dive
(C) an airplane pilot making a high-altitude flight
(D) a person going from daylight into a darkened room
(E) a person moving from Denver, Colorado, to New Orleans, Louisiana

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14. The word "inured" in line 31 most likely means

(A) exposed
(B) accustomed
(C) attracted
(D) associated
(E) in love with

15. According to the passage, a major distinction between acclimatization and adaptation is that acclimatization

(A) is more important than adaptation
(B) is relatively slow and adaptation is relatively rapid
(C) applies to adjustments while adaptation does not apply to adjustments
(D) applies to terrestrial animals and adaptation to aquatic animals
(E) is applicable to all animals and plants and adaptation only to higher animals and man

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Questions 16–24 are based on the following passage.

The following passage is about the Chinese Empire, the forces that kept the Empire together, its culture, and its philosophy.

First of all, it is important to note that the old China was an empire rather than a state. To the Chinese and their rulers, the word China did not exist and to them it would have been meaningless. They sometimes used a term which we translate "the Middle Kingdom." To them there could be only one legitimate ruler for all civilized mankind. All others were rightly subordinate to him and should acknowledge his suzerainty. From this standpoint, there could not, as in Europe, be diplomatic relations between equal states, each of them sovereign. When, in the nineteenth century, Europeans insisted upon intercourse with China on the basis of equality, the Chinese were at first amused and then scandalized and indignant. Centuries of training had bred in them the conviction that all other rulers should be tributary to the Son of Heaven.

The tie which bound this world-embracing empire together, so the Chinese were taught to believe, was as much cultural as political. As there could be only one legitimate ruler to whom all mankind must be subject, so there could be only one culture that fully deserved to be called civilized. Other cultures might have worth, but ultimately they were more or less barbarous. There could be only one civilization, and that was the civilization of the Middle Kingdom. Beginning with the Han, the ideal of civilization was held to be Confucian. The Confucian interpretation of civilization was adopted and inculcated as the norm. Others might be tolerated, but if they seriously threatened the Confucian institutions and foundations of society, they were to be curbed and, perhaps, exterminated as a threat to the highest values.

Since the bond of the Empire was cultural and since the Empire should include all civilized mankind, racial distinctions were not so marked as in most other parts of the world. The Chinese did not have so strong a sense of being of different blood from non-Chinese as twentieth-century conceptions of race and nation later led them to develop. They were proud of being "the sons of Han" or "the men of T'ang," but if a people fully adopted Chinese culture, no great distinction was perceived between them and those who earlier had been governed by that culture.

This helps to account for the comparative contentment of Chinese under alien rulers. If, as was usually the case, these invading conquerors adopted the culture of their subjects and governed through the accustomed machinery and by traditional Confucian principles, they were accepted as legitimate Emperors. Few of the non-Chinese dynasties completely made this identification. This probably in part accounts for such restiveness as the Chinese showed under their rule. For instance, so long as they were dominant, the Manchus, while they accepted much of the Chinese culture and prided themselves on being experts in it and posed as its patrons, never completely abandoned their distinctive ancestral ways.

The fact that the tie was cultural rather than racial helps to account for the remarkable homogeneity of the Chinese. Many different ethnic strains have gone to make up the people whom we call the Chinese. Presumably in the Chou and probably, earlier, in the Shang, the bearers of Chinese culture were not a single race. As Chinese culture moved southward, it encountered differing cultures and, almost certainly, divergent stocks. The many invaders from the north and west brought in more variety. In contrast with India, where caste and religion have tended to keep apart the racial strata, in China assimilation made great progress. That assimilation has not been complete. Today the discerning observer can notice differences even among those who are Chinese in language and customs, and in many parts of China Proper there are groups who preserve not only their racial but also their linguistic and cultural identity. Still, nowhere else on the globe is there so numerous a people who are so nearly homogeneous as are the Chinese.

This homogeneity is due not merely to a common cultural tie, but also to the particular kind of culture which constitutes that tie. Something in the Chinese tradition recognized as civilized those who conformed to certain ethical standards and social customs. It was the fitting into Confucian patterns of conduct and of family and community life rather than blood kinship or ancestry which labeled one as civilized and as Chinese.

16. The force that kept the Chinese Empire together was largely

(A) religious
(B) military
(C) economic
(D) a fear of invasion from the north and west
(E) the combination of a political and a cultural bond

17. The reason China resisted having diplomatic relations with European nations was that

(A) for centuries the Chinese had believed that their nation must be supreme among all other countries
(B) the Chinese saw nothing of value in European culture
(C) China was afraid of European military power
(D) such relations were against the teachings of the Son of Heaven
(E) the danger of disease was ever present when foreigners arrived

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18. Confucianism stresses, above all,

(A) image worship
(B) recognition of moral values
(C) division of church and state
(D) acceptance of foreigners
(E) separation of social classes

19. Han and T'ang were Chinese

(A) philosophers
(B) holidays
(C) dynasties
(D) generals
(E) religions

20. If the unifying force in the Chinese empire had been racial, it is likely that

(A) China would have never become great
(B) China would be engaged in constant warfare
(C) China would have become a highly industrialized nation
(D) there would have been increasing discontent under foreign rulers
(E) China would have greatly expanded its influence

21. A problem of contemporary India that does not trouble China is

(A) overpopulation
(B) the persistence of the caste system
(C) a lack of modern industrial development
(D) a scarcity of universities
(E) a low standard of living

22. The Manchus encountered some dissatisfaction within the empire because

(A) of their tyrannical rule
(B) they retained some of their original cultural practices
(C) they were of a distinctly foreign race
(D) of the heavy taxes they levied
(E) they rejected totally Chinese culture

23. The Chinese are basically a homogeneous people because

(A) different races were able to assimilate to a great degree
(B) there has always been only one race in China
(C) the other races came to look like the Chinese because of geographical factors
(D) all other races were forcibly kept out of China
(E) of their antipathy toward intermarriage

24. The word "restiveness" in line 48 means

(A) authority
(B) happiness
(C) impatience
(D) hyperactivity
(E) quietude

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

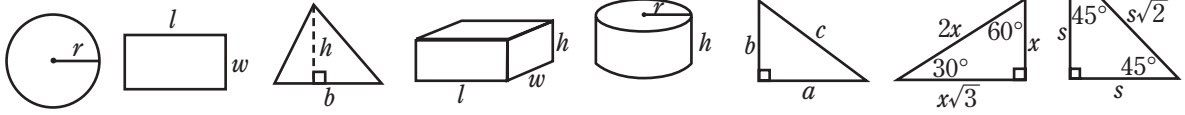
Time: 20 Minutes—Turn to Section 8 (page 961) of your answer sheet to answer the questions in this section.
16 Questions

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:

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

REFERENCE INFORMATION



$A = \pi r^2$ $A = lw$ $A = \frac{1}{2}bh$ $V = lwh$ $V = \pi r^2 h$ $c^2 = a^2 + b^2$ *Special Right Triangles*
$C = 2\pi r$

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. James buys a frying pan and two coffee mugs for $27. Aria buys the same-priced frying pan and one of the same-priced coffee mugs for $23. How much does one of those frying pans cost?

(A) $4
(B) $7
(C) $19
(D) $20
(E) $21

2. A rectangular floor 8 feet long and 6 feet wide is to be completely covered with tiles. Each tile is a square with a perimeter of 2 feet. What is the least number of such tiles necessary to cover the floor?

(A) 7
(B) 12
(C) 24
(D) 48
(E) 192

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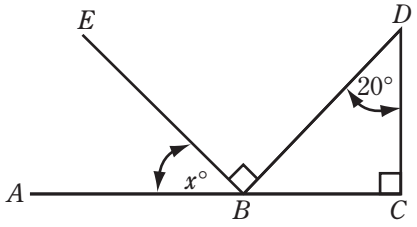
3. If 9 and 12 each divide Q without remainder, which of the following must Q divide without remainder?

(A) 1
(B) 3
(C) 36
(D) 72
(E) The answer cannot be determined from the given information.

5. Given three segments of length x, $11 - x$, and $x - 4$, respectively, which of the following indicates the set of all numbers x such that the 3 segments could be the lengths of the sides of a triangle?

(A) $x > 4$
(B) $x < 11$
(C) $0 < x < 7$
(D) $5 < x < 15$
(E) $5 < x < 7$



4. In the figure above, $DC \perp AC$, $EB \perp DB$, and AC is a line segment. What is the value of x? (*Note*: Figure is not drawn to scale.)

(A) 15
(B) 20
(C) 30
(D) 80
(E) 160

6. Given three positive integers a, b, and 4, if their average (arithmetic mean) is 6, which of the following could *not* be the value of the product ab?

(A) 13
(B) 14
(C) 40
(D) 48
(E) 49

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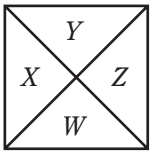
7. If $mn \neq 0$, then $\frac{1}{n^2}\left(\frac{m^5n^3}{m^3}\right)^2 =$

(A) mn^4
(B) m^4n^2
(C) m^4n^3
(D) m^4n^4
(E) m^4n^5

8. From a party attended by 3 females and 3 males, 3 people at random enter a previously empty room. What is the probability that there are exactly 2 males in the room?

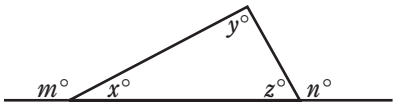
(A) $\frac{1}{4}$
(B) $\frac{3}{8}$
(C) $\frac{9}{20}$
(D) $\frac{2}{3}$
(E) $\frac{5}{6}$



Question 9 refers to the figure above, where W, X, Y, and Z are four distinct digits from 0 to 9, inclusive, and $W + X + Y = 5Z$.

9. Under the given conditions, all of the following could be values of Z EXCEPT

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



10. In the figure above, $m + n =$

(A) 90
(B) 180
(C) $180 + y$
(D) $90 + x + y + z$
(E) $2(x + y + z)$

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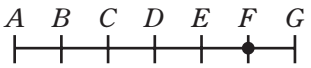
11. The volume of a cube is less than 25, and the length of one of its edges is a positive integer. What is the largest possible value for the total area of the six faces?

(A) 1
(B) 6
(C) 24
(D) 54
(E) 150

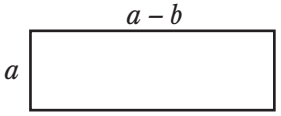
12. The ratio of females to males on a particular flight was 2 : 3. Females represented five more than $\frac{1}{3}$ of all the people aboard. How many people were on that flight?

(A) 15
(B) 25
(C) 30
(D) 45
(E) 75



13. AG is divided into six equal segments in the figure above. A circle, not visible, with center F and radius $\frac{1}{5}$ the length of AG, will intersect AG between

(A) F and G
(B) E and F
(C) D and E
(D) C and D
(E) A and B



14. The figure above is a rectangle having width a and length $a - b$. Find its perimeter in terms of a and b.

(A) $a^2 - ab$
(B) $4a - 2b$
(C) $4a - b$
(D) $2a - 2b$
(E) $2a - b$

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$$\begin{array}{r} AB \\ +\ BA \\ \hline CDC \end{array}$$

15. If each of the four letters in the sum above represents a *different* digit, which of the following *cannot* be a value of A?

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

16. If $f(x) = x^2 + x$ and $g(y) = y^2$, then $f[g(-1)] =$

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

STOP

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

SECTION 9

Time: 20 Minutes—Turn to Section 9 (page 961) of your answer sheet to answer the questions in this section.
19 Questions

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

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

EXAMPLE:

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

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

Ⓐ Ⓑ Ⓒ Ⓓ ●

1. Joining _____ momentum for reform in intercollegiate sports, university presidents have called for swift steps to correct imbalances between classwork and _____.

(A) a maximum…studies
(B) a rational…awards
(C) an increasing…athletics
(D) an exceptional…professors
(E) a futile…contests

2. Thinking nothing can be done, many victims of arthritis ignore or delay _____ countermeasures, thus aggravating the problem.

(A) tardy
(B) injurious
(C) characteristic
(D) weird
(E) effective

3. A strange and _____ fate seemed to keep him helpless and unhappy, despite occasional interludes of _____.

(A) malevolent…conflict
(B) bizarre…disenchantment
(C) virulent…tension
(D) ineluctable…serenity
(E) intriguing…inactivity

4. Samuel Clemens chose the _____ Mark Twain as a result of his knowledge of riverboat piloting.

(A) protagonist
(B) pseudonym
(C) mountebank
(D) hallucination
(E) misanthrope

5. For years a vocalist of spirituals, Marian Anderson was finally recognized as _____ singer when the Metropolitan Opera House engaged her.

(A) a capable
(B) an unusual
(C) an attractive
(D) a cooperative
(E) a mediocre

6. Leonardo da Vinci _____ the law of gravity two centuries before Newton and also made the first complete _____ charts of the human body.

(A) examined…colorful
(B) anticipated…anatomical
(C) avoided…meaningful
(D) realized…explanatory
(E) suspected…mural

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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 7–19 are based on the following passages.

The following two passages describe two views of the makeup and character of an artist.

Passage 1

The special quality which makes an artist of any worth might be defined, indeed, as an extraordinary capacity for irritation, a pathological sensitiveness to environmental pricks and stings. He differs from the rest of us mainly because he reacts sharply and in an uncommon manner to phenomena which leave the rest of us unmoved, or, at most, merely vaguely annoyed. He is, in brief, a more delicate fellow than we are and hence less fitted to prosper and enjoy himself under the conditions of life that he and we must face alike. Therefore, he takes to artistic endeavor, which is at once a criticism of life and an attempt to escape from life.

So much for the theory of it. The more the facts are studied, the more they bear it out. In those fields of art, at all events, which concern themselves with ideas as well as with sensations, it is almost impossible to find any trace of an artist who was not actively hostile to his environment and thus an indifferent patriot. From Dante to Tolstoy and from Shakespeare to Mark Twain, the story is ever the same. Names suggest themselves instantly: Goethe, Heine, Shelley, Byron, Thackeray, Balzac, Rabelais, Cervantes, Swift, Dostoevsky, Carlyle, Molière, Pope—all bitter critics of their time and nation, most of them piously hated by the contemporary 100 percenters, some of them actually fugitives from rage and reprisal.

Dante put all of the patriotic Italians of his day into Hell and showed them boiling, roasting, and writhing on hooks. Cervantes drew such a devastating picture of the Spain that he lived in that it ruined the Spaniards. Shakespeare made his heroes foreigners and his clowns Englishmen. Goethe was in favor of Napoleon. Rabelais, a citizen of Christendom rather than of France, raised a cackle against it that Christendom is still trying in vain to suppress. Swift, having finished the Irish and then the English, proceeded to finish the whole human race. The exceptions are few and far between, and not many of them will bear examination. So far as I know, the only eminent writer in English history who was also a 100 percent Englishman, absolutely beyond suspicion, was Samuel Johnson. But was Johnson actually an artist? If he was, then a kazoo player is a musician. He employed the materials of one of the arts, to wit, words, but his use of them was mechanical, not artistic. If Johnson were alive today, he would be a United States senator, or a university president. He left such wounds upon English prose that it took a century to recover from them.

Passage 2

For the ease and pleasure of treading the old road, accepting the fashions, the education, the religion of society, he takes the cross of making his own and, of course, the self-accusation, the faint heart, the frequent uncertainty and loss of time, which are the nettles and tangling vines in the way of the self-relying and self-directed, and the state of virtual hostility in which he seems to stand to society, and especially to educated society. For all this loss and scorn, what offset? The artist is to find consolation in exercising the highest functions of human nature. The artist is one who raises himself from private consideration and breathes and lives on public and illustrious thoughts. The artist is the world's eye. He is the world's heart. He is to resist the vulgar prosperity that retrogrades ever to barbarism, by preserving and communicating heroic sentiments, noble biographies, melodious verse, and the conclusions of history. Whatsoever oracles the human heart, in all emergencies, in all solemn hours, has uttered as its commentary on the world of actions—these he shall receive and impart. And whatsoever new verdict Reason from her inviolable seat pronounces on the passing men and women and events of today—this he shall hear and promulgate.

These being his functions, it becomes the artist to feel all confidence in himself and to defer never to the popular cry. He and he alone knows the world. The world of any moment is the merest appearance. Some great decorum, some fetish of a government, some ephemeral trade, or war, or man, is cried up by half mankind and cried down by the other half, as if all depended on this particular up or down. The odds are that the whole question is not worth the poorest thought which the scholar has lost in listening to the controversy. Let her not quit her belief that a popgun is a popgun, though the ancient and honorable of the earth affirm it to be the crack of doom. In silence, in steadiness, in severe abstraction, let him hold by himself; add observation to observation, patient of neglect, patient of reproach, and bide his own time—happy enough if he can satisfy himself alone that this day he has seen something truly. Success treads on every right step. For the instinct is sure that prompts him to tell his brother what he thinks. The artist then learns that in going down into the secrets of his own mind he has descended into the secrets of all minds. He learns that the artist who has mastered any law in his private thoughts is master to that extent of all translated. The poet, in utter solitude remembering his spontaneous thoughts and recording them, is found to have recorded that which men in crowded cities find true for them also. The orator distrusts at first the fitness of his frank confessions, his want of knowledge of the persons he addresses, until he finds that he is the complement of his hearers—that they drink

GO ON TO THE NEXT PAGE

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