



## SECTION 2

Time — 25 minutes

18 Questions

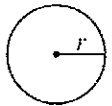
Turn to Section 2 (page 4) of your answer sheet to answer the questions in this section.

**Directions:** This section contains two types of questions. You have 25 minutes to complete both types. For questions 1-8, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratchwork.

Notes

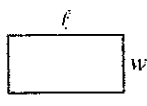
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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

Reference Information

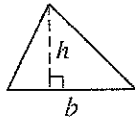


$$A = \pi r^2$$

$$C = 2\pi r$$



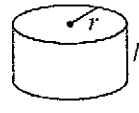
$$A = \ell w$$



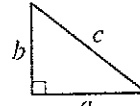
$$A = \frac{1}{2}bh$$



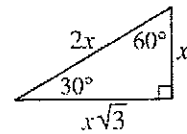
$$V = \ell wh$$



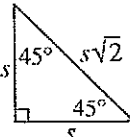
$$V = \pi r^2 h$$



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

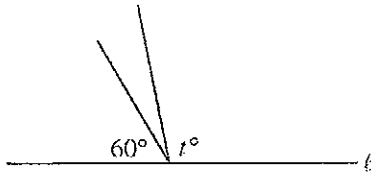


Special Right Triangles



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

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



Note: Figure not drawn to scale.

- In the figure above, which of the following could be the value of  $t$ ?
  - 105
  - 120
  - 135
  - 150
  - 165

- If the average (arithmetic mean) of  $x$ , 2, and 3 equals 3 then the average of  $2x$ , 4, and 6 equals
  - 24
  - 18
  - 12
  - 9
  - 6

GO ON TO THE NEXT PAGE



3. If  $ab = 12$  and  $ab^2 = 48$ , what is the value of  $a$ ?


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

5. On a two-part test for job applicants, part I has 20 questions, each worth 3 points, and part II has 30 questions, each worth 1.5 points. A total score of 50 or more points is needed to qualify for a job. If an applicant has answered 12 questions correctly on part I, what is the least number of questions that the applicant has to answer correctly on part II to qualify for a job?

- (A) 5
- (B) 9
- (C) 10
- (D) 14
- (E) 21

4. If  $\sqrt{3^k} = 27$ , then  $3^k$  is equal to which of the following?

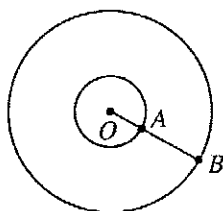
- (A) 3
- (B) 9
- (C) 27
- (D)  $27^2$
- (E)  $27^3$

GO ON TO THE NEXT PAGE 



6. Of the following numbers, which has the greatest odd factor?

(A) 18  
(B) 20  
(C) 48  
(D) 56  
(E) 88



Note: Figure not drawn to scale.

7. In the figure above,  $O$  is the center of both circles and  $A$  lies on  $\overline{OB}$ . If  $AB = 3$  and the circumference of the smaller circle is  $2\pi$ , what is the circumference of the larger circle?

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

$$a^2, \frac{a}{2}, \frac{1}{4}, \dots$$

8. The first term of the sequence above is  $a^2$ , where  $a$  is a positive integer. After the first term, each term in the sequence is equal to a constant times the term immediately preceding it. In terms of  $a$ , what is the 5th term of the sequence?

(A)  $\frac{1}{4a^2}$

(B)  $\frac{1}{16a^2}$

(C)  $\frac{a^2}{16}$

(D)  $8a^2$

(E)  $16a$



**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.

Write answer in boxes. →

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

7	/	1	2
○	○	○	○
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

← Fraction line

Grid in result. →

Answer: 2.5

2	.	5
○	○	○
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

← Decimal point

Answer: 201

Either position is correct.

2	0	1
○	○	○
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

2	0	1
○	○	○
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

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

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, you will receive credit only if the circles are filled in correctly.
- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as  $3\frac{1}{2}$  must be gridded as 3.5 or 7/2. (If  $\frac{31}{10}$  is gridded, it will be interpreted as  $\frac{31}{2}$ , not  $3\frac{1}{2}$ .)

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

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

2	/	3
○	○	○
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

.	6	6	6
○	○	○	○
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

.	6	6	7
○	○	○	○
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

9. The geometric mean of two positive numbers  $p$  and  $r$  is defined as  $\sqrt{pr}$ . What is the geometric mean of 3 and 12?

10. A cookbook indicates that 35 to 45 mushrooms will make 6 servings of a certain appetizer. According to the cookbook, what is one possible whole number of mushrooms that will make 2 such servings of the appetizer?



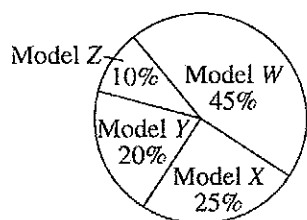
11. In a triangle with sides of length 3,  $b$ , and  $c$ , the sum of the lengths of any two sides is twice the length of the third side. What is the perimeter of the triangle?

13. In the  $xy$ -coordinate plane, point  $A$  has coordinates  $(20, w)$ . If the line with equation  $2x - y = 7$  passes through  $A$ , what is the value of  $w$ ?

NUMBER OF  
CARS SOLD  
PER MONTH

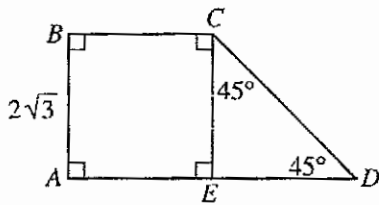
January	35
February	25
March	20
April	38
May	42

CARS SOLD  
BY MODEL

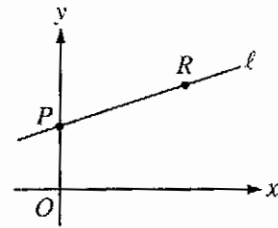


12. The chart above shows the number of cars sold by Jones Motor Company during the first 5 months of 2002. The circle graph above shows the percent of these cars sold by model during the same 5 months. According to this information, what was the total number of model  $W$  and model  $X$  cars sold during these months?

14. The formula for converting a temperature on the Fahrenheit scale ( $F$ ) to one on the Celsius scale ( $C$ ) is  $C = \frac{5}{9}(F - 32)$ . The formula for converting a temperature on the Celsius scale to one on the Kelvin scale ( $K$ ) is  $K = C + 273$ . What temperature on the Fahrenheit scale corresponds to 323 on the Kelvin scale? (Disregard the degree symbol when gridding your answer.)



15. In the figure above,  $ABCE$  is a square. What is the area of trapezoid  $ABCD$ ?



17. In the figure above, point  $P$  has coordinates  $(0, 2)$ , point  $R$  has coordinates  $(4, t)$ , and the slope of line  $\ell$  is  $\frac{1}{3}$ . What is the value of  $t$ ?

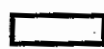
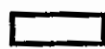
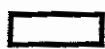
$$x = 4.N$$

16. In the decimal representation of  $x$  above, the tenths digit is  $N$ . If  $x$  can also be expressed as  $\frac{p}{5}$  for some prime number  $p$ , what is the value of  $x$ ?

18. Two oil tanks,  $X$  and  $Y$ , have the same capacity. The amount of oil in tank  $X$  is  $\frac{1}{2}$  of its capacity, and the amount of oil in tank  $Y$  is 1200 gallons less than its capacity. If there are 7800 gallons of oil in the two tanks combined, what is the capacity, in gallons, of tank  $X$ ?

**STOP**

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



## SECTION 5

Time — 25 minutes

20 Questions

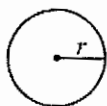
Turn to Section 5 (page 5) of your answer sheet to answer the questions in this section.

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

Notes

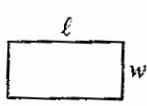
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Reference Information

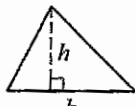


$$A = \pi r^2$$

$$C = 2\pi r$$



$$A = \ell w$$



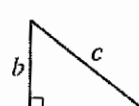
$$A = \frac{1}{2}bh$$



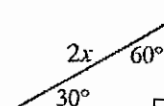
$$V = \ell wh$$



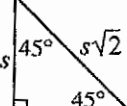
$$V = \pi r^2 h$$



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



Special Right Triangles



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

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

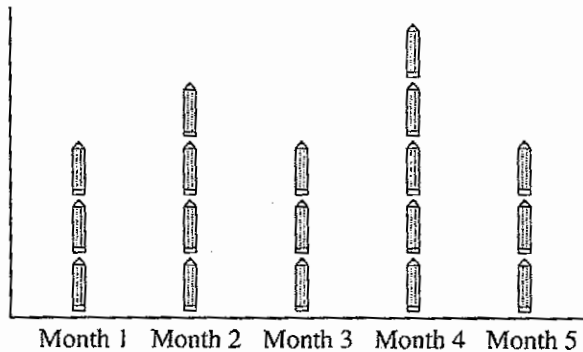
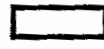
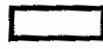
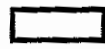
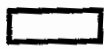
1. If  $a + b = -6$  then  $a + b + 4 =$


- (A) -10  
(B) -2  
(C) 2  
(D) 6  
(E) 10

2. Points  $A$ ,  $B$ ,  $C$ ,  $D$ , and  $E$  lie on a line in that order. If  $AB = 6$ ,  $CD = 3$ ,  $AE = 25$ , and  $BC = DE$ , what is length  $BC$ ?

- (A) 19  
(B) 16  
(C)  $12\frac{1}{2}$   
(D)  $9\frac{1}{2}$   
(E) 8

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 = 10 pencils

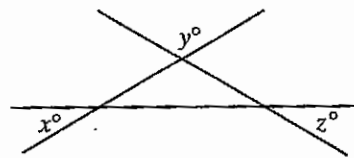
3. The chart above shows the number of pencils Ms. Anderson distributed to her class during a five-month period. If pencils came only in packs of 12, how many packs of these pencils did Ms. Anderson distribute during these five months?

(A) 12  
(B) 14  
(C) 15  
(D) 16  
(E) 18

Five times a number is 10 more than the number.

4. If  $z$  represents the unknown number in the statement above, which of the following is true?

(A)  $5z = z + 10$   
(B)  $5z + 10 = z$   
(C)  $5(z + 10) = z$   
(D)  $5z > z + 10$   
(E)  $5z < z + 10$



Note: Figure not drawn to scale.

5. In the figure above, if  $x = 45$  and  $z = 30$ , what is the value of  $y$ ?

(A) 75  
(B) 105  
(C) 120  
(D) 135  
(E) 150

6. How many different meal combinations, each consisting of an appetizer, an entree, and a dessert, can be chosen from a menu that lists 3 appetizers, 5 entrees, and 4 desserts?

(A) 12  
(B) 17  
(C) 24  
(D) 27  
(E) 60

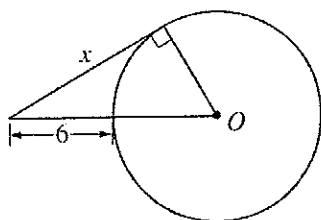
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S   E   C   R   E   T     C   O   D   E  
 15   3   4   8   3   2     4   12   20   3

7. In a certain code, each number from 1 to 26 stands for a different letter of the alphabet. Two words in the code are written above. Which of the following could stand for the word WATER in the code?

- (A) 15   1   2   3   8
- (B) 15   1   2   4   8
- (C) 14   20   2   3   8
- (D) 9   7   2   3   8
- (E) 9   7   6   3   8



Note: Figure not drawn to scale.

8. The circle above has center  $O$  and a radius of 9. What is the value of  $x$ ?
- (A) 9
  - (B) 10
  - (C) 12
  - (D) 13
  - (E) 15

1, 4, 7, 10, ...

9. In the sequence above, each number after the first number, 1, is 3 more than the number just before it. What is the positive difference between the 40th number and the 28th number in this sequence?

- (A) 3
- (B) 12
- (C) 13
- (D) 36
- (E) 39

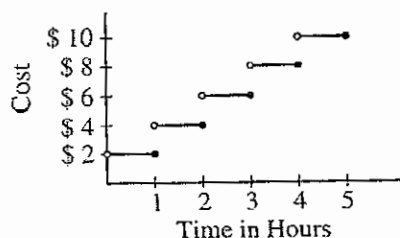
$a$	-2	-1	0	1	2
$g(a)$	7	3	-3	5	7

10. The table above defines the function  $g$ . For which value of  $a$  is  $g(a) = |a| + |a - 3|$ ?

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

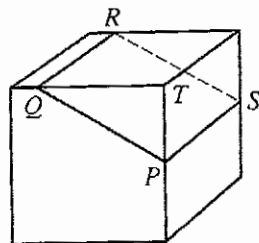
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ACE PARKING GARAGE COSTS



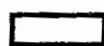
11. The graph above shows the daily parking costs at the ACE Parking Garage. Mr. Liu parked his car at this garage for  $3\frac{1}{2}$  hours on Monday,  $2\frac{1}{4}$  hours on Tuesday, 5 hours on Wednesday,  $4\frac{1}{2}$  hours on Thursday, and  $1\frac{3}{4}$  hours on Friday. If he paid his parking charges at the end of each day, what was his total parking cost for these five days?
- (A) \$17  
 (B) \$30  
 (C) \$34  
 (D) \$36  
 (E) \$38

12. If  $s$  is the sum of  $x$ , 2, and 4 and if  $x = \frac{1}{3}s$ , what is the value of  $s$ ?
- (A) 6  
 (B) 9  
 (C) 12  
 (D) 15  
 (E) 18

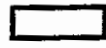
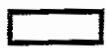


13. In the figure above,  $P$  and  $S$  are midpoints of two edges of the cube and  $PQRS$  is a square. What is the degree measure of  $\angle QPT$ ?
- (A) 75  
 (B) 60  
 (C) 45  
 (D) 30  
 (E) 15
- 
14. If  $y = -4x + 8$ , which of the following conditions implies that  $y$  is greater than 24?
- (A)  $x < -4$   
 (B)  $x < 0$   
 (C)  $x < 4$   
 (D)  $x > -4$   
 (E)  $x > 4$

GO ON TO THE NEXT PAGE



15. If  $X$  is the set of positive even integers less than 5 and  $Y$  is the set of positive odd integers less than 5, what is the union of these sets?
- (A)  $\{1, 2, 3, 4\}$   
(B)  $\{0, 1, 2, 3, 4\}$   
(C)  $\{1, 2, 3, 4, 5\}$   
(D)  $\{0, 1, 2, 3, 4, 5\}$   
(E) The empty set
16. A rectangle has length  $d$  and perimeter 40. What is the area of the rectangle in terms of  $d$ ?
- (A)  $20d$   
(B)  $40d$   
(C)  $d(20 - d)$   
(D)  $d(40 - d)$   
(E)  $40 + d$
17. In the  $xy$ -plane, the graph of the function  $f(x) = x^2 - 8x + 16$  is tangent to the  $x$ -axis at the point with coordinates  $(a, b)$ . What is the value of  $a$ ?
- (A)  $-16$   
(B)  $-4$   
(C)  $0$   
(D)  $4$   
(E)  $16$
18. If, for positive numbers  $x$ ,  $y$ , and  $z$ , the ratio of  $x$  to  $y$  is 3 to 2 and the ratio of  $x$  to  $z$  is 6 to 5, what is the ratio of  $y$  to  $z$ ?
- (A) 2 to 5  
(B) 3 to 5  
(C) 4 to 5  
(D) 9 to 5  
(E) It cannot be determined from the information given.



19. A library has a system of fines for overdue books. For the first week, the fine is \$0.20 per day. After the first week, the fine is \$0.50 per day. If a book is  $x$  days overdue and  $x > 14$ , which of the following expressions best represents the amount of the fine, in dollars?
- (A)  $0.20x + 0.50(x + 7)$   
(B)  $0.20x + 0.50(x - 7)$   
(C)  $1.40 + 0.50(x + 7)$   
(D)  $1.40 + 0.50x$   
(E)  $1.40 + 0.50(x - 7)$

20. A number  $a$  is to be chosen at random from the set  $\{1, 2, 3, 4, 5, 6\}$ . A number  $b$  is then to be chosen at random from the remaining five numbers. What is the probability that  $\frac{a}{b}$  will be an integer?

- (A)  $\frac{4}{15}$   
(B)  $\frac{2}{9}$   
(C)  $\frac{1}{5}$   
(D)  $\frac{1}{6}$   
(E)  $\frac{1}{10}$

**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 8

Time — 20 minutes

16 Questions

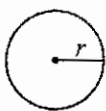
Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.

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

Notes

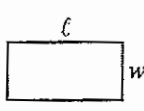
- The use of a calculator is permitted.
- All numbers used are real numbers.
- Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not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

Reference Information

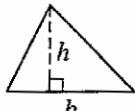


$$A = \pi r^2$$

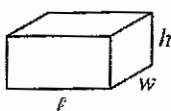
$$C = 2\pi r$$



$$A = \ell w$$



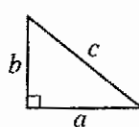
$$A = \frac{1}{2}bh$$



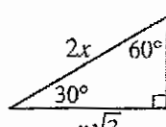
$$V = \ell wh$$



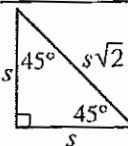
$$V = \pi r^2 h$$



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

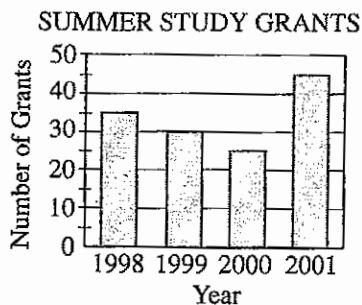


Special Right Triangles



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

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



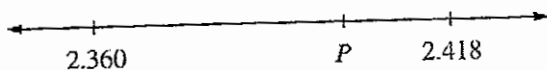
- The bar graph above shows the number of summer study grants awarded to students at a large university during the years 1998 through 2001. What was the total number of summer study grants awarded during this four-year period?
  - 45
  - 100
  - 120
  - 135
  - 140

$$x^2 < 9$$

$$x^3 > 5$$

- If  $x$  is an integer that satisfies both inequalities above, what is the value of  $x$ ?
  - 1
  - 1
  - 2
  - 3
  - 4

GO ON TO THE NEXT PAGE



3. On the number line above, which of the following could be the coordinate of point  $P$ ?

(A) 2.402  
 (B) 2.428  
 (C) 3.375  
 (D) 2.0360  
 (E) 2.3596

5. Two parallel lines are intersected by a third line to form eight nonoverlapping angles. The measure of one of the angles formed is less than 90 degrees. Including this angle, how many of the eight angles have a measure that is less than 90 degrees?

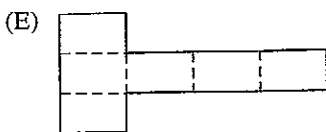
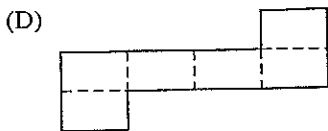
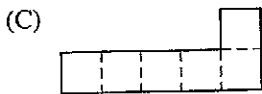
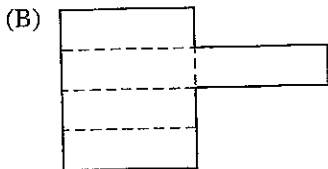
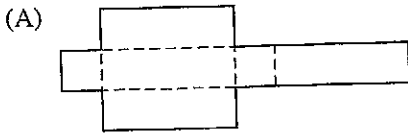
(A) One  
 (B) Two  
 (C) Four  
 (D) Six  
 (E) Eight

4. So far, Kurt has saved \$8 each week for  $w$  weeks to buy a mountain bike costing \$256, and he still needs to save more money. Which of the following expressions shows the amount, in dollars, he still needs to save to buy the bike?

(A)  $256w + 8$   
 (B)  $(256 + 8)w$   
 (C)  $256 + 8w$   
 (D)  $256 - 8w$   
 (E)  $(256 - 8)w$

GO ON TO THE NEXT PAGE

6. Which of the following figures, when folded along the dotted line segments, could form a closed rectangular box?



7. In a box of 50 T-shirts, 40 percent were either size small or size medium. If 12 T-shirts were size small, what percent of the 50 T-shirts were size medium?

- (A) 8%
- (B) 16%
- (C) 20%
- (D) 24%
- (E) 76%

8. If one of three consecutive odd integers is 41, which of the following is the difference between the greatest possible sum and the least possible sum of these three integers?

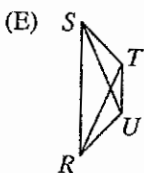
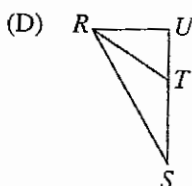
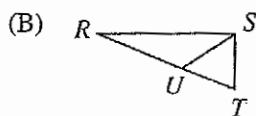
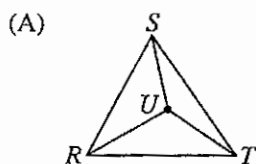
- (A) 15
- (B) 12
- (C) 9
- (D) 6
- (E) 3

GO ON TO THE NEXT PAGE 



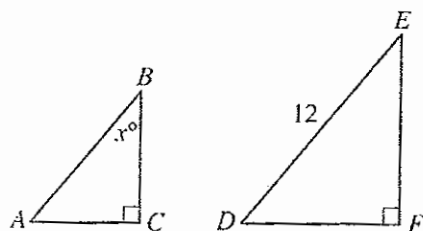
	R	S	T	U
R	—	24	26	16
S	24	—	10	11
T	26	10	—	10
U	16	11	10	—

9. The chart above gives the straight-line distances, to the nearest whole mile, between cities  $R$ ,  $S$ ,  $T$ , and  $U$ . For example, the distance between cities  $S$  and  $U$  is 11 miles. Which of the following maps most accurately represents the distances between the four cities?



10. Which of the following is equivalent to dividing a number by 2 and then squaring the result?

- (A) Dividing the number by 2  
 (B) Dividing the number by 4  
 (C) Dividing the square of the number by  $\frac{1}{2}$   
 (D) Dividing the square of the number by 2  
 (E) Dividing the square of the number by 4



Note: Figures not drawn to scale.

11. In the figure above,  $\triangle ABC$  is similar to  $\triangle DEF$  and side  $\overline{AC}$  corresponds to side  $\overline{DF}$ . If  $x = 30$ , what is the length of side  $\overline{DF}$ ?
- (A)  $4\sqrt{3}$   
 (B)  $6\sqrt{2}$   
 (C)  $6\sqrt{3}$   
 (D) 6  
 (E) 8

GO ON TO THE NEXT PAGE





$$x^2 - 9x + 18 = x(x - 3a) + (ab)$$

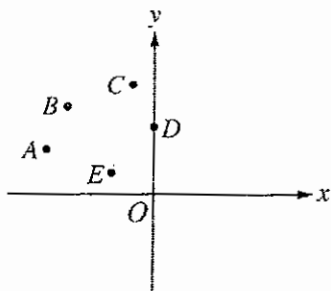
12. The equation above is true for all values of  $x$ . If  $a$  and  $b$  are constants, what is the value of  $b$ ?

(A) 3  
(B) 6  
(C) 9  
(D) 12  
(E) 18

14. If  $x$  and  $y$  are positive integers such that  $2^{-x} \cdot 2^y = 8$ , which of the following could be the value of  $xy$ ?

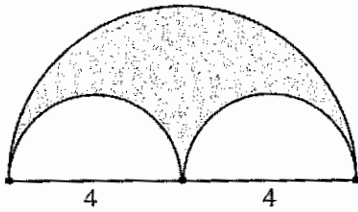
I. 3  
II. 8  
III. 18

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



13. In the figure above, points  $A$ ,  $B$ ,  $C$ ,  $D$ , and  $E$  are in the  $xy$ -coordinate plane. If these points are reflected about the line  $y = x$ , for how many of the resulting reflected points will the product of the  $x$ -coordinate and the  $y$ -coordinate be negative?

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



15. The shaded region in the figure above is bounded by three semicircles. What is the area of the shaded region?

(A)  $4\pi$   
(B)  $8\pi$   
(C)  $12\pi$   
(D)  $16\pi$   
(E)  $32\pi$

16. In the  $xy$ -plane, the point  $(2, 5)$  lies on the graph of  $y = f(x)$ , where  $f$  is a function. Which of the following must be a point on the graph of  $y = f(x - 1)$ ?

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

**STOP**

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

# Correct Answers and Difficulty Levels Form Code HUDA

## Critical Reading

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

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

## Mathematics

Section 2			Section 5			Section 8		
Multiple-Choice Questions COR. DIFF. ANS. LEV.	Student-Produced Response Questions COR. ANS.	DIFF. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	COR. DIFF. ANS. LEV.	
1. A 2	9. 6	1	1. B 1	11. E 3	1. D 1	9. B 3		
2. E 2	10. 12,13,14,15	2	2. E 1	12. B 3	2. C 1	10. E 4		
3. C 2	11. 9	3	3. C 1	13. B 4	3. A 1	11. D 3		
4. D 2	12. 112	2	4. A 2	14. A 3	4. D 1	12. B 4		
5. C 2	13. 33	3	5. B 2	15. A 4	5. C 2	13. E 4		
6. E 3	14. 122	3	6. E 2	16. C 4	6. A 1	14. C 5		
7. E 4	15. 18	4	7. D 2	17. D 3	7. B 3	15. A 4		
8. B 4	16. 4,6,23/5	4	8. C 2	18. C 4	8. B 3	16. D 5		
	17. 10/3,3.33	4	9. D 2	19. E 5				
	18. 6000	4	10. A 3	20. A 5				

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

## Writing Multiple-Choice

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

Number correct	Number correct
Number incorrect	Number incorrect

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

## SAT Score Conversion Table Form Code HUDA

Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score	Raw Score	Critical Reading Scaled Score	Math Scaled Score	Writing Multiple-Choice Scaled Score
67	800			31	500	550	54
66	800			30	490	540	53
65	800			29	490	530	52
64	780			28	480	530	51
63	760			27	470	520	50
62	750			26	470	510	49
61	730			25	460	500	48
60	720			24	450	490	47
59	710			23	450	480	46
58	700			22	440	480	45
57	690			21	440	470	45
56	680			20	430	460	44
55	670			19	420	450	43
54	660	800		18	420	440	42
53	650	780		17	410	430	41
52	640	760		16	400	430	40
51	640	740		15	400	420	39
50	630	720		14	390	410	38
49	620	710	80	13	380	400	37
48	610	700	78	12	380	390	36
47	610	690	76	11	370	380	36
46	600	680	74	10	360	370	35
45	590	670	72	9	360	360	34
44	580	660	70	8	350	350	33
43	580	650	69	7	340	340	31
42	570	650	67	6	330	330	30
41	560	640	66	5	320	310	29
40	560	630	65	4	310	300	27
39	550	620	63	3	300	290	26
38	540	610	62	2	280	270	24
37	540	600	61	1	270	260	22
36	530	590	60	0	250	240	20
35	520	590	59	-1	240	220	20
34	520	580	57	-2	220	200	20
33	510	570	56	-3	200	200	20
32	500	560	55	and below			

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

## SAT Writing Composite Score Conversion Table Form Code HUDA

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

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