



SECTION 8

Time — 20 minutes

16 Questions

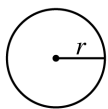
Turn to Section 8 (page 7) of your answer sheet to answer the questions in this section.

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

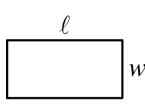
1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is 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

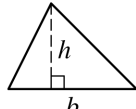


$$A = \pi r^2$$

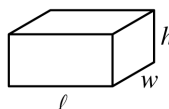
$$C = 2\pi r$$



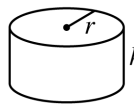
$$A = \ell w$$



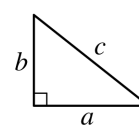
$$A = \frac{1}{2}bh$$



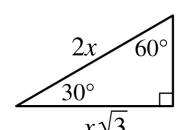
$$V = \ell wh$$



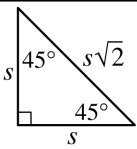
$$V = \pi r^2 h$$



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



Special Right Triangles

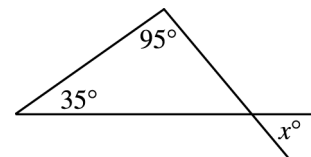


The number of degrees of arc in a circle is 360.

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

1. What number increased by 3 is equal to 16 decreased by 3?

(A) 9
(B) 10
(C) 12
(D) 16
(E) 22



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

(A) 30
(B) 35
(C) 40
(D) 45
(E) 50

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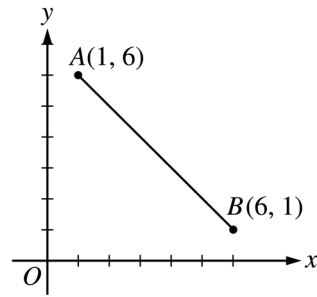


3. A survey of households in a small city showed that there was an average (arithmetic mean) of 3.2 persons per household and an average of 2.5 radios per household. Based on these results, if 48,000 people live in the city, which of the following is the best estimate of the total number of radios in the households of this city?

(A) 18,520
(B) 26,300
(C) 35,200
(D) 37,500
(E) 61,440

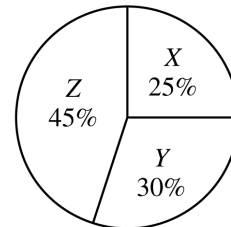
4. If $6x + 3 = 2x + 9$, what is the value of $4x$?

(A) 2
(B) 3
(C) 4
(D) 6
(E) 12



5. In the figure above, $\overline{AB}$ is a diagonal of a square (not shown). Which of the following are the coordinates of one point on the other diagonal of the square?

(A) (6, 6)
(B) (6, 5)
(C) (1, 3)
(D) (1, 2)
(E) (0, 0)



6. The circle graph above shows the division of a quantity into three parts. What is the ratio of the amount of X to the amount of Y ?

(A) 1 to 3
(B) 2 to 3
(C) 5 to 6
(D) 5 to 9
(E) 5 to 11

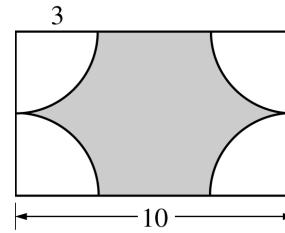


7. A certain snack recipe contains only raisins, chocolate bits, and peanuts. In the recipe, the weights of the raisins and the chocolate bits are equal and the weight of the peanuts is twice the weight of the raisins. How many ounces of chocolate bits are there in 30 ounces of this recipe?

(A) 6
(B) 7.5
(C) 9
(D) 10.5
(E) 12

8. Set S consists of the positive multiples of 6 that are less than 50, and set T consists of the positive multiples of 8 that are less than 50. How many numbers do sets S and T have in common?

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



9. In the rectangle above, the radius of each quarter circle is 3. What is the area of the shaded region?

(A) $16 - 3\pi$
(B) $16 - 9\pi$
(C) $32 - 9\pi$
(D) $60 - 3\pi$
(E) $60 - 9\pi$

10. Of the 26 cookies in a tin, the most common type is oatmeal. What is the probability that a cookie randomly selected from the tin is not oatmeal?

(A) $\frac{1}{26}$
(B) $\frac{6}{13}$
(C) $\frac{1}{2}$
(D) $\frac{25}{26}$

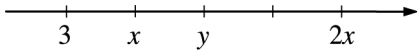
(E) It cannot be determined from the information given.



x	$f(x)$	$g(x)$
-1	2	3
0	1	-1
1	-1	2
2	0	-2

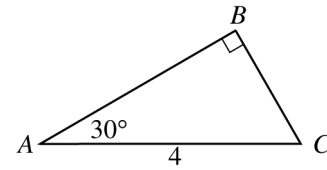
11. According to the table above, what is the value of $f(-1) + g(2)$?

(A) -3
(B) -1
(C) 0
(D) 1
(E) 3



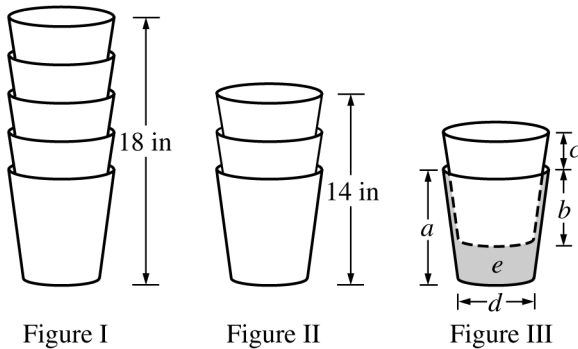
12. If the tick marks are equally spaced on the number line above, what is the value of y ?

(A) 5
(B) 6
(C) 7
(D) 8
(E) 9



13. In the figure above, what is the area of $\triangle ABC$?

(A) $2\sqrt{3}$
(B) 4
(C) $4\sqrt{3}$
(D) 8
(E) $8\sqrt{3}$



Note: Figures not drawn to scale.

14. Figures I and II above show two stacks of identical pails and their heights. If n is the number of pails in a stack and $n > 1$, the height of the stack, in inches, is given by $h(n) = 2n + 8$. The number 2 in the equation represents what quantity shown in Figure III?

- (A) a , the height of one pail
- (B) b , the height of the overlap of two pails
- (C) c , the distance between the top of one pail and the top of the next pail in the stack
- (D) d , the diameter of the bottom of each pail
- (E) e , the volume of the bottom pail that remains after the second pail is stacked on top of it

15. If x and y are integers and $xy + x^2$ is odd, which of the following statements must be true?

- I. x is odd.
- II. y is odd.
- III. $x + y$ is odd.

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

16. For how many integers n is $(2n + 1)(3n - 11)$ a negative number?

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

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.