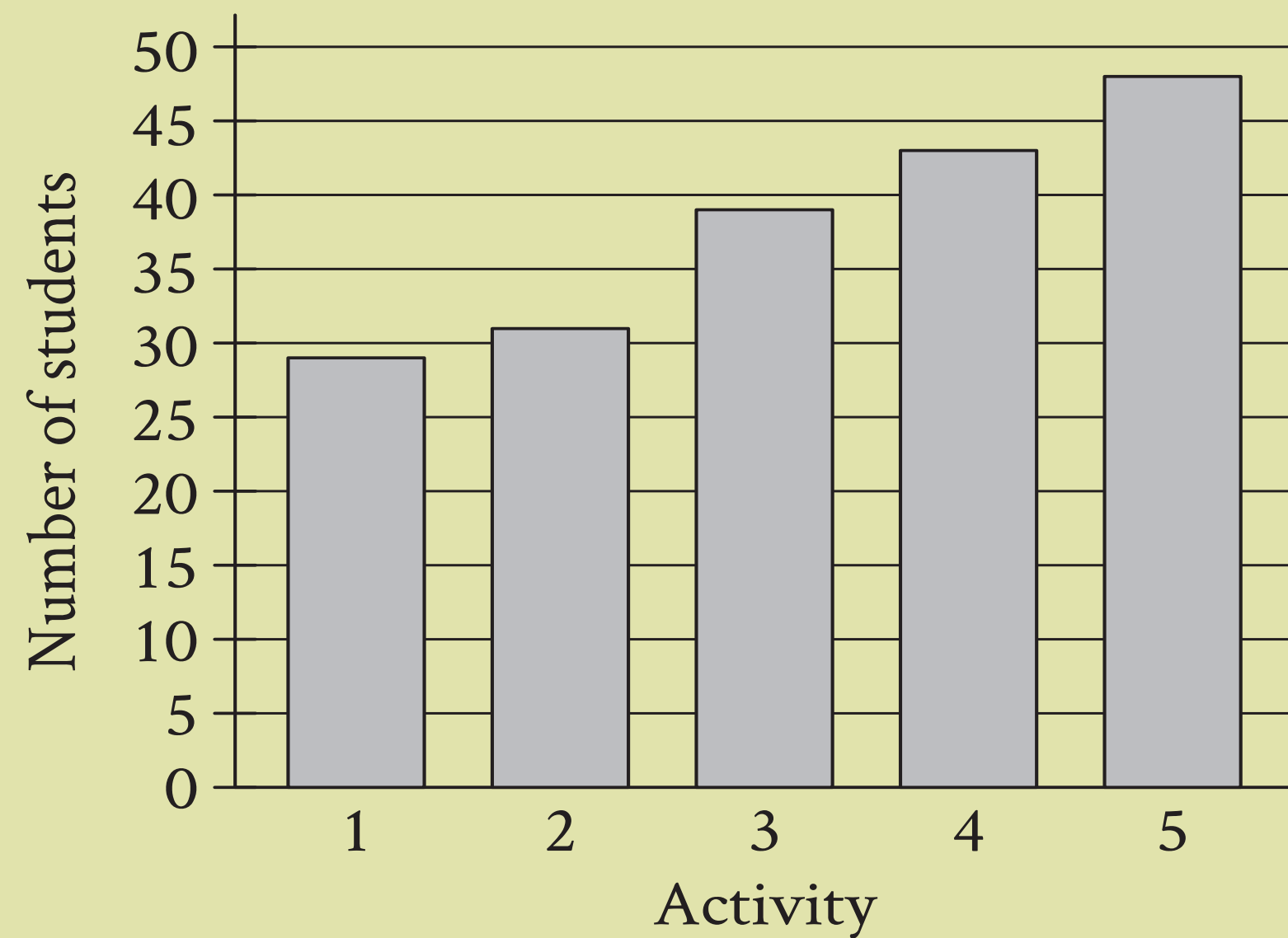




DIGITAL SAT PREP

TEST #4

MODULE 1



A group of students voted on five after-school activities. The bar graph shows the number of students who voted for each of the five activities. How many students chose activity 3?

- A) 25
- B) 39
- C) 48
- D) 50

What percentage of 300 is 75?

- A) 25%
- B) 50%
- C) 75%
- D) 225%

$$\frac{x^2}{25} = 36$$

What is a solution to the given equation?

- A) 6
- B) 30
- C) 450
- D) 900

3 more than 8 times a number x is equal to 83.
Which equation represents this situation?

A) $(3)(8)x = 83$

B) $8x = 83 + 3$

C) $3x + 8 = 83$

D) $8x + 3 = 83$

Hana deposited a fixed amount into her bank account each month. The function $f(t) = 100 + 25t$ gives the amount, in dollars, in Hana's bank account after t monthly deposits. What is the best interpretation of 25 in this context?

- A) With each monthly deposit, the amount in Hana's bank account increased by \$25.
- B) Before Hana made any monthly deposits, the amount in her bank account was \$25.
- C) After 1 monthly deposit, the amount in Hana's bank account was \$25.
- D) Hana made a total of 25 monthly deposits.

6

A customer spent \$27 to purchase oranges at \$3 per pound. How many pounds of oranges did the customer purchase?

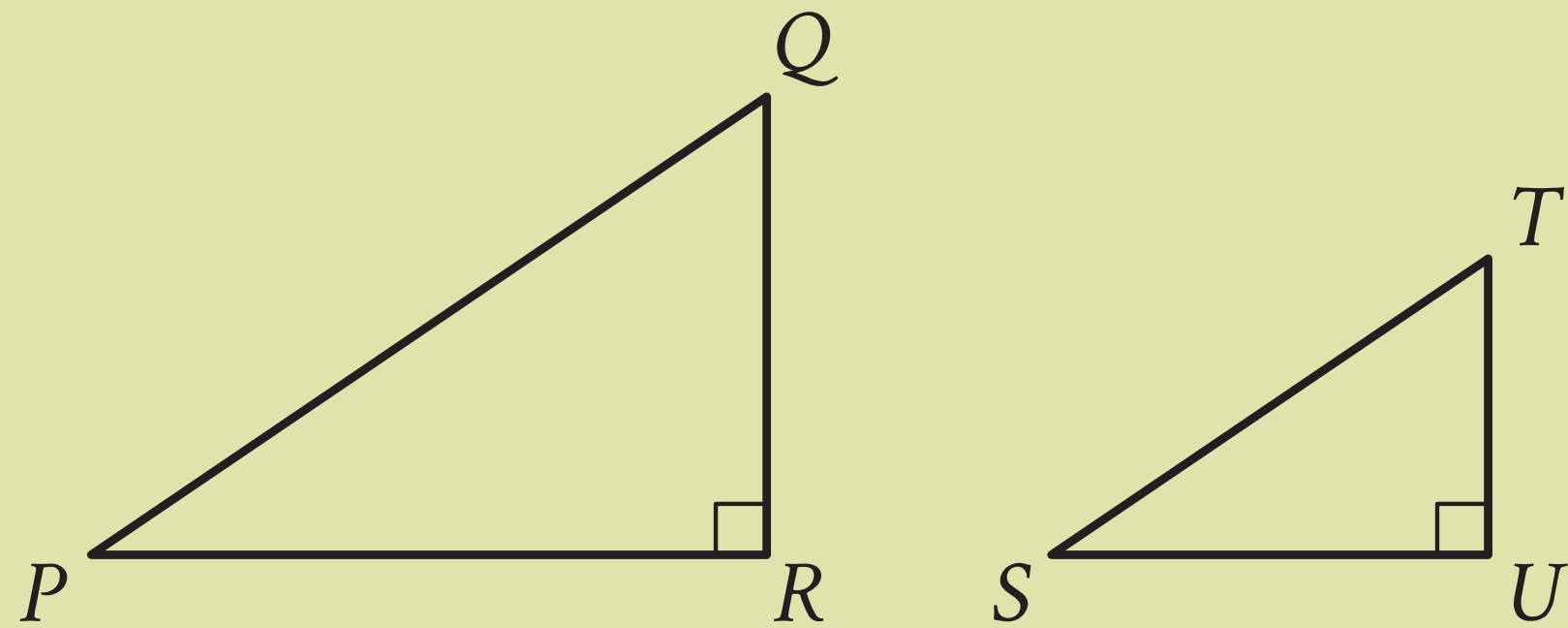
7

Nasir bought 9 storage bins that were each the same price. He used a coupon for \$63 off the entire purchase. The cost for the entire purchase after using the coupon was \$27. What was the original price, in dollars, for 1 storage bin?

x	$f(x)$
0	29
1	32
2	35

For the linear function f , the table shows three values of x and their corresponding values of $f(x)$. Which equation defines $f(x)$?

- A) $f(x) = 3x + 29$
- B) $f(x) = 29x + 32$
- C) $f(x) = 35x + 29$

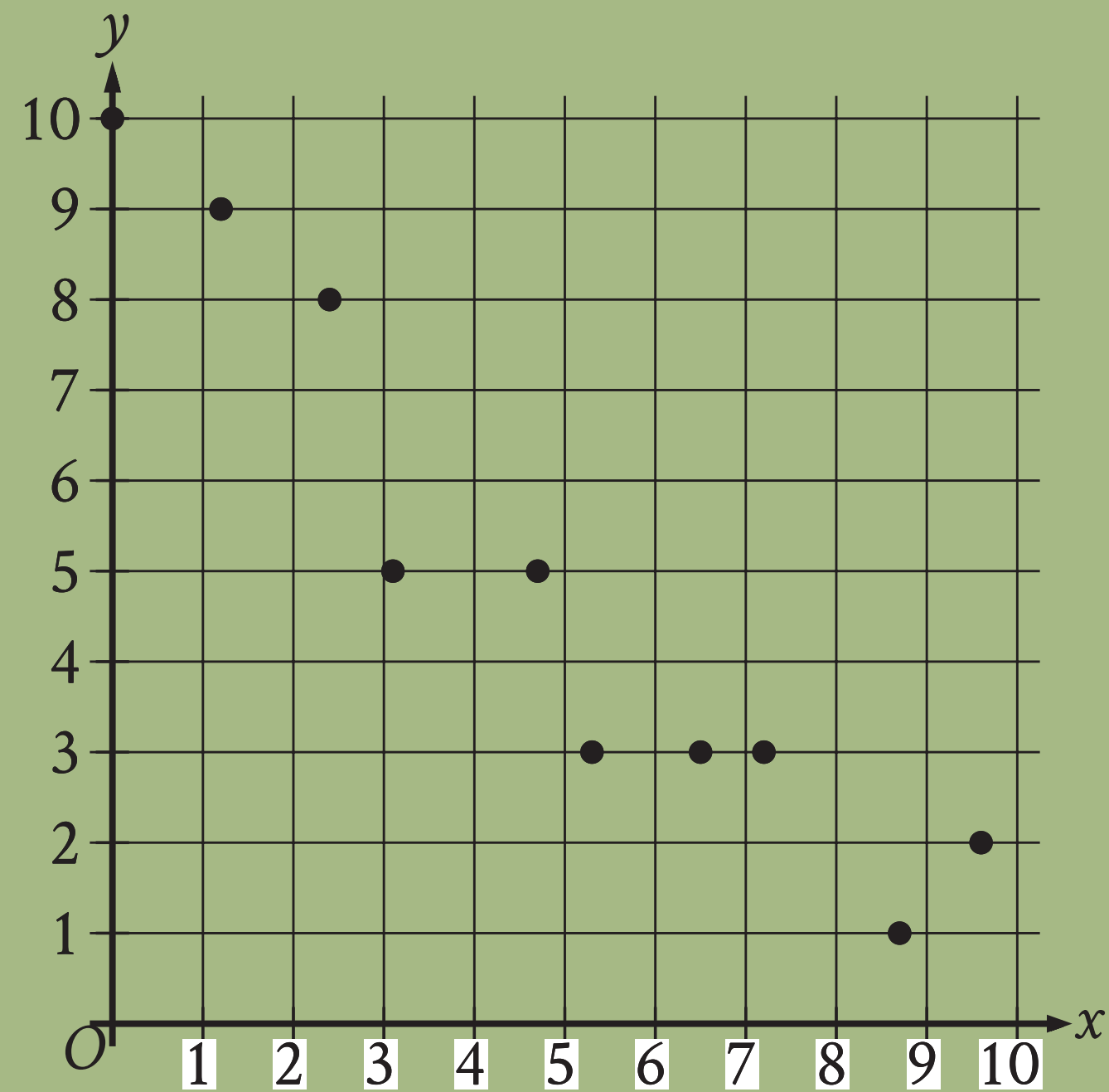


Note: Figures not drawn to scale.

Right triangles PQR and STU are similar, where P corresponds to S . If the measure of angle Q is 18° , what is the measure of angle S ?

- A) 18°
- B) 72°
- C) 82°
- D) 162°

The scatterplot shows the relationship between two variables, x and y .



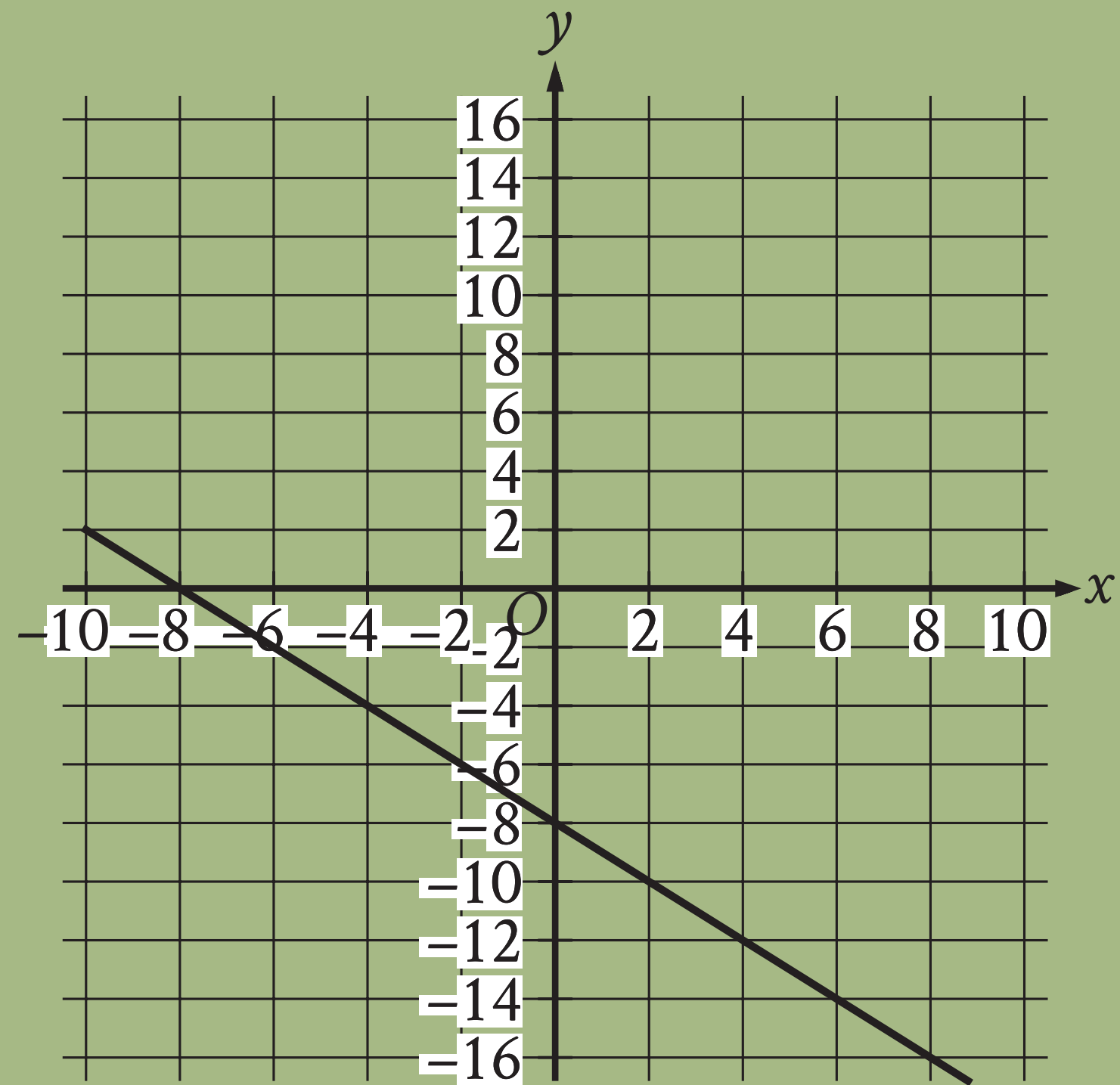
Which of the following equations is the most appropriate linear model for the data shown?

- A) $y = 0.9 + 9.4x$
- B) $y = 0.9 - 9.4x$
- C) $y = 9.4 + 0.9x$
- D) $y = 9.4 - 0.9x$

$$2.5b + 5r = 80$$

The given equation describes the relationship between the number of birds, b , and the number of reptiles, r , that can be cared for at a pet care business on a given day. If the business cares for 16 reptiles on a given day, how many birds can it care for on this day?

- A) 0
- B) 5
- C) 40
- D) 80



What is an equation of the graph shown?

- A) $y = -2x - 8$
- B) $y = x - 8$
- C) $y = -x - 8$
- D) $y = 2x - 8$

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If $\frac{x}{8} = 5$, what is the value of $\frac{8}{x}$?

$$24x + y = 48$$

$$6x + y = 72$$

The solution to the given system of equations is (x, y) . What is the value of y ?

Line t in the xy -plane has a slope of $-\frac{1}{3}$ and passes through the point $(9, 10)$. Which equation defines line t ?

A) $y = 13x - \frac{1}{3}$

B) $y = 9x + 10$

C) $y = -\frac{x}{3} + 10$

D) $y = -\frac{x}{3} + 13$

The function $f(x) = 206(1.034)^x$ models the value, in dollars, of a certain bank account by the end of each year from 1957 through 1972, where x is the number of years after 1957. Which of the following is the best interpretation of “ $f(5)$ is approximately equal to 243” in this context?

- A) The value of the bank account is estimated to be approximately 5 dollars greater in 1962 than in 1957.
- B) The value of the bank account is estimated to be approximately 243 dollars in 1962.
- C) The value, in dollars, of the bank account is estimated to be approximately 5 times greater in 1962 than in 1957.
- D) The value of the bank account is estimated to increase by approximately 243 dollars every 5 years between 1957 and 1972.

For a certain rectangular region, the ratio of its length to its width is 35 to 10. If the width of the rectangular region increases by 7 units, how must the length change to maintain this ratio?

- A) It must decrease by 24.5 units.
- B) It must increase by 24.5 units.
- C) It must decrease by 7 units.
- D) It must increase by 7 units.

Square P has a side length of x inches. Square Q has a perimeter that is 176 inches greater than the perimeter of square P. The function f gives the area of square Q, in square inches. Which of the following defines f ?

- A) $f(x) = (x + 44)^2$
- B) $f(x) = (x + 176)^2$
- C) $f(x) = (176x + 44)^2$
- D) $f(x) = (176x + 176)^2$

$$\frac{14x}{7y} = 2\sqrt{w + 19}$$

The given equation relates the distinct positive real numbers w , x , and y . Which equation correctly expresses w in terms of x and y ?

A) $w = \sqrt{\frac{x}{y}} - 19$

B) $w = \sqrt{\frac{28x}{14y}} - 19$

C) $w = \left(\frac{x}{y}\right)^2 - 19$

D) $w = \left(\frac{28x}{14y}\right)^2 - 19$

Point O is the center of a circle. The measure of arc RS on this circle is 100° . What is the measure, in degrees, of its associated angle ROS ?

The expression $6\sqrt[5]{3^5 x^{45}} \cdot \sqrt[8]{2^8 x}$ is equivalent to ax^b , where a and b are positive constants and $x > 1$.

What is the value of $a + b$?

A right triangle has sides of length $2\sqrt{2}$, $6\sqrt{2}$, and $\sqrt{80}$ units. What is the area of the triangle, in square units?

- A) $8\sqrt{2} + \sqrt{80}$
- B) 12
- C) $24\sqrt{80}$
- D) 24

The expression $4x^2 + bx - 45$, where b is a constant, can be rewritten as $(hx + k)(x + j)$, where h , k , and j are integer constants. Which of the following must be an integer?

A) $\frac{b}{h}$

B) $\frac{b}{k}$

C) $\frac{45}{h}$

D) $\frac{45}{k}$

$$y = 2x^2 - 21x + 64$$

$$y = 3x + a$$

In the given system of equations, a is a constant. The graphs of the equations in the given system intersect at exactly one point, (x, y) , in the xy -plane. What is the value of x ?

- A) -8
- B) -6
- C) 6
- D) 8

An isosceles right triangle has a hypotenuse of length 58 inches. What is the perimeter, in inches, of this triangle?

A) $29\sqrt{2}$

B) $58\sqrt{2}$

C) $58 + 58\sqrt{2}$

D) $58 + 116\sqrt{2}$

In the xy -plane, a parabola has vertex $(9, -14)$ and intersects the x -axis at two points. If the equation of the parabola is written in the form $y = ax^2 + bx + c$, where a , b , and c are constants, which of the following could be the value of $a + b + c$?

- A) -23
- B) -19
- C) -14
- D) -12

Function f is defined by $f(x) = -a^x + b$, where a and b are constants. In the xy -plane, the graph of $y = f(x) - 15$ has a y -intercept at $\left(0, -\frac{99}{7}\right)$. The product of a and b is $\frac{65}{7}$. What is the value of a ?

Module 1

QUESTION #	CORRECT	MARK YOUR CORRECT ANSWERS
1	B	
2	A	
3	B	
4	D	
5	A	
6	9	
7	10	
8	A	
9	B	
10	D	
11	A	
12	C	
13	1/5; .2	
14	80	

QUESTION #	
1	
2	
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15	D	
16	B	
17	B	
18	A	
19	C	
20	100	
21	36 1/8; 45.12; 45.13	
22	B	
23	D	
24	C	
25	C	
26	D	
27	5	