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The SAT®

Practice Test #4

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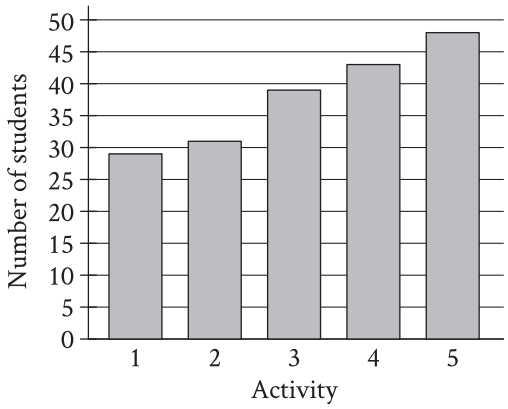
SAT®

6TSL05

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

2

What percentage of 300 is 75?

A) 25%

B) 50%

C) 75%

D) 225%

3

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

What is a solution to the given equation?

A) 6

B) 30

C) 450

D) 900

4

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) $8x + 3 = 83$

CONTINUE

5

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?

8

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 $f(x)$?

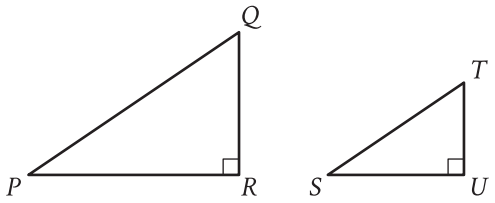
A) $f(x) = 3x + 29$

B) $f(x) = 29x + 32$

C) $f(x) = 35x + 29$

D) $f(x) = 32x + 35$

9



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°

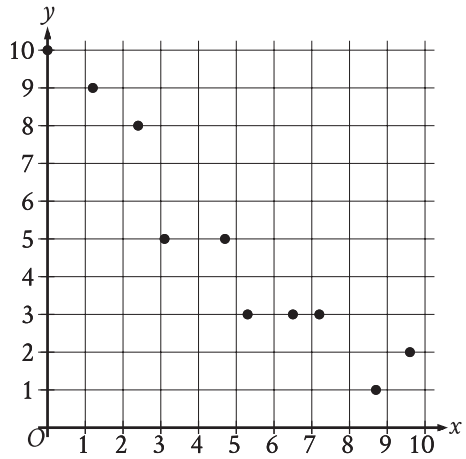
C) 82°

D) 162°

CONTINUE

10

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) $y = 9.4 - 0.9x$

11

$$2.5b + 5r = 80$$

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?

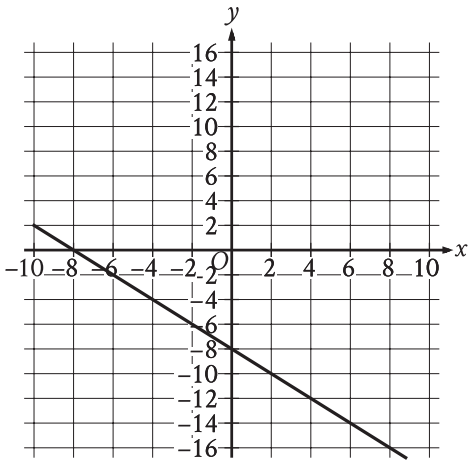
A) 0

B) 5

C) 40

D) 80

12



What is an equation of the graph shown?

A) $y = -2x - 8$

B) $y = x - 8$

C) $y = -x - 8$

D) $y = 2x - 8$

13

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

14

$$24x + y = 48$$
$$6x + y = 72$$

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

CONTINUE

15

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

16

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.

17

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.

18

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) $f(x) = (176x + 176)^2$

CONTINUE

19

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

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

20

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 ?

21

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

What is the value of $a + b$?

22

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

23

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) $\frac{45}{k}$

CONTINUE

24

$$y = 2x^2 - 21x + 64$$
$$y = 3x + a$$

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

25

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) $58 + 116\sqrt{2}$

26

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

27

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?

STOP

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