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The SAT®

Practice Test #3

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SAT®

6TSL04

1

$$k + 12 = 336$$

What is the solution to the given equation?

A) 28
B) 324
C) 348
D) 4,032

2

The function f is defined by $f(x) = x^3 + 15$. What is the value of $f(2)$?

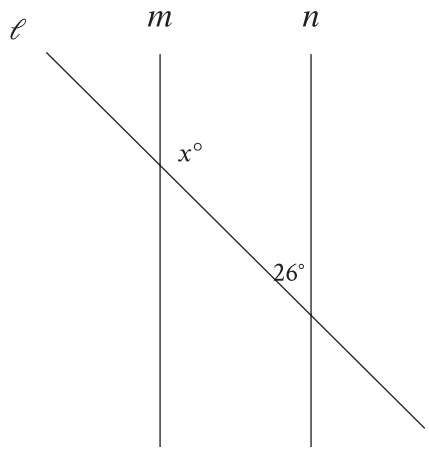
A) 20
B) 21
C) 23
D) 24

3

Sean rents a tent at a cost of \$11 per day plus a onetime insurance fee of \$10. Which equation represents the total cost c, in dollars, to rent the tent with insurance for d days?

A) $c = 11(d + 10)$
B) $c = 10(d + 11)$
C) $c = 11d + 10$
D) $c = 10d + 11$

4



Note: Figure not drawn to scale.

In the figure shown, line m is parallel to line n. What is the value of x ?

A) 13
B) 26
C) 52
D) 154

5

John paid a total of \$165 for a microscope by making a down payment of \$37 plus p monthly payments of \$16 each. Which of the following equations represents this situation?

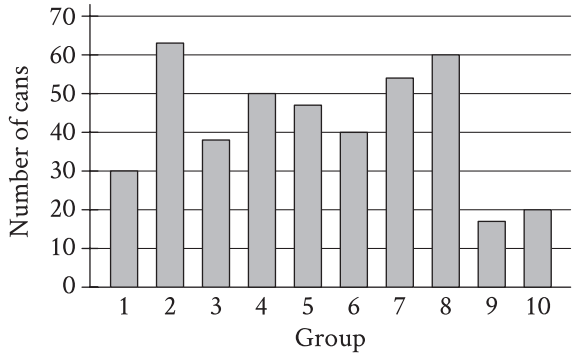
A) $16p - 37 = 165$
B) $37p - 16 = 165$
C) $16p + 37 = 165$
D) $37p + 16 = 165$

CONTINUE

6

If $y = 5x + 10$, what is the value of y when $x = 8$?

7



The bar graph shows the distribution of 419 cans collected by 10 different groups for a food drive. How many cans were collected by group 6?

8

The table gives the distribution of votes for a new school mascot and grade level for 80 students.

Mascot	Grade level			
	Sixth	Seventh	Eighth	Total
Badger	4	9	9	22
Lion	9	2	9	20
Longhorn	4	6	4	14
Tiger	6	9	9	24
Total	23	26	31	80

If one of these students is selected at random, what is the probability of selecting a student whose vote for new mascot was for a lion?

A) $\frac{1}{9}$

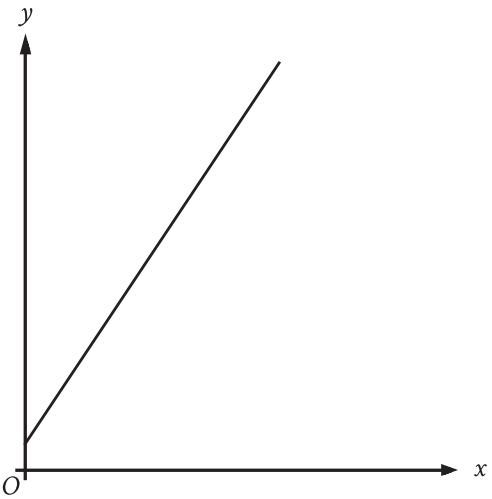
B) $\frac{1}{5}$

C) $\frac{1}{4}$

D) $\frac{2}{3}$

CONTINUE

9



The graph represents the total charge, in dollars, by an electrician for x hours of work. The electrician charges a onetime fee plus an hourly rate. What is the best interpretation of the slope of the graph?

A) The electrician's hourly rate

B) The electrician's onetime fee

C) The maximum amount that the electrician charges

D) The total amount that the electrician charges

10

Square X has a side length of 12 centimeters. The perimeter of square Y is 2 times the perimeter of square X. What is the length, in centimeters, of one side of square Y?

A) 6

B) 10

C) 14

D) 24

11

What is the equation of the line that passes through the point (0, 5) and is parallel to the graph of $y = 7x + 4$ in the xy-plane?

A) $y = 5x$

B) $y = 7x + 5$

C) $y = 7x$

D) $y = 5x + 7$

12

In the linear function h, $h(0) = 41$ and $h(1) = 40$. Which equation defines h ?

A) $h(x) = -x + 41$

B) $h(x) = -x$

C) $h(x) = -41x$

D) $h(x) = -41$

CONTINUE

13

The function $f(t) = 60{,}000(2)^{\frac{t}{410}}$ gives the number of bacteria in a population t minutes after an initial observation. How much time, in minutes, does it take for the number of bacteria in the population to double?

14

The function f is defined by $f(x) = (x - 6)(x - 2)(x + 6)$. In the xy-plane, the graph of $y = g(x)$ is the result of translating the graph of $y = f(x)$ up 4 units. What is the value of $g(0)$?

15

A candle is made of 17 ounces of wax. When the candle is burning, the amount of wax in the candle decreases by 1 ounce every 4 hours. If 6 ounces of wax remain in this candle, for how many hours has it been burning?

A) 3
B) 6
C) 24
D) 44

16

$$14j + 5k = m$$

The given equation relates the numbers j, k, and m. Which equation correctly expresses k in terms of j and m ?

A) $k = \frac{m - 14j}{5}$

B) $k = \frac{1}{5}m - 14j$

C) $k = \frac{14j - m}{5}$

D) $k = 5m - 14j$

17

Triangle FGH is similar to triangle JKL, where angle F corresponds to angle J and angles G and K are right angles. If $\sin(F) = \frac{308}{317}$, what is the value of $\sin(J)$?

A) $\frac{75}{317}$
B) $\frac{308}{317}$
C) $\frac{317}{308}$
D) $\frac{317}{75}$

CONTINUE

18

The product of two positive integers is 546. If the first integer is 11 greater than twice the second integer, what is the smaller of the two integers?

A) 7
B) 14
C) 39
D) 78

19

$$y \leq x + 7$$
$$y \geq -2x - 1$$

Which point (x, y) is a solution to the given system of inequalities in the xy-plane?

A) $(-14, 0)$
B) $(0, -14)$
C) $(0, 14)$
D) $(14, 0)$

20

$$\sqrt{(x-2)^2} = \sqrt{3x + 34}$$

What is the smallest solution to the given equation?

21

The regular price of a shirt at a store is \$11.70. The sale price of the shirt is 80% less than the regular price, and the sale price is 30% greater than the store's cost for the shirt. What was the store's cost, in dollars, for the shirt?

22

A sample of oak has a density of 807 kilograms per cubic meter. The sample is in the shape of a cube, where each edge has a length of 0.90 meters. To the nearest whole number, what is the mass, in kilograms, of this sample?

A) 588
B) 726
C) 897
D) 1,107

23

For $x > 0$, the function f is defined as follows:

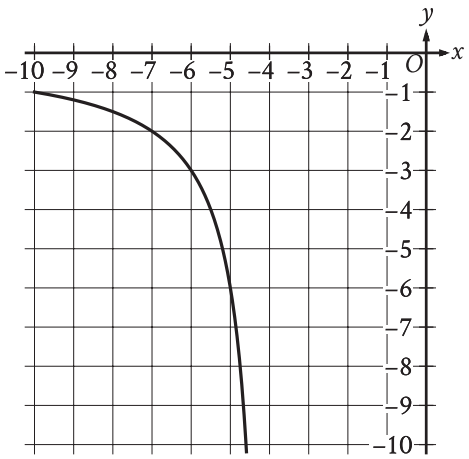
$f(x)$ equals 201% of x

Which of the following could describe this function?

A) Decreasing exponential
B) Decreasing linear
C) Increasing exponential
D) Increasing linear

CONTINUE

24



The rational function f is defined by an equation in the form $f(x) = \frac{a}{x + b}$, where a and b are constants. The partial graph of $y = f(x)$ is shown. If $g(x) = f(x + 4)$, which equation could define function g ?

A) $g(x) = \frac{6}{x}$

B) $g(x) = \frac{6}{x + 4}$

C) $g(x) = \frac{6}{x + 8}$

D) $g(x) = \frac{6(x + 4)}{x + 4}$

25

Which expression is equivalent to $\frac{y + 12}{x - 8} + \frac{y(x - 8)}{x^2y - 8xy}$?

A) $\frac{xy + y + 4}{x^3y - 16x^2y + 64xy}$

B) $\frac{xy + 9y + 12}{x^2y - 8xy + x - 8}$

C) $\frac{xy^2 + 13xy - 8y}{x^2y - 8xy}$

D) $\frac{xy^2 + 13xy - 8y}{x^3y - 16x^2y + 64xy}$

CONTINUE

26

Poll Results

Angel Cruz	483
Terry Smith	320

The table shows the results of a poll. A total of 803 voters selected at random were asked which candidate they would vote for in the upcoming election. According to the poll, if 6,424 people vote in the election, by how many votes would Angel Cruz be expected to win?

A) 163

B) 1,304

C) 3,864

D) 5,621

27

The graph of $x^2 + x + y^2 + y = \frac{199}{2}$ in the xy-plane is a circle. What is the length of the circle's radius?

STOP

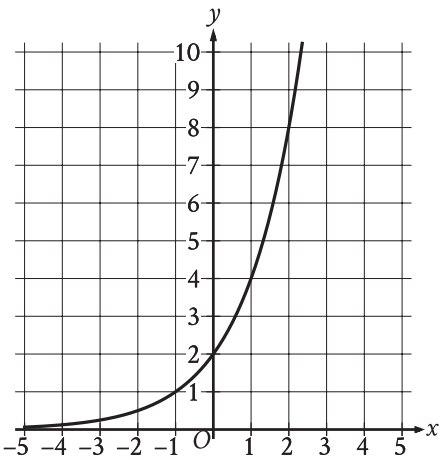
If you finish before time is called, you may check your work on this module only. Do not turn to any other module in the test.

1

Isabel grows potatoes in her garden. This year, she harvested 760 potatoes and saved 10% of them to plant next year. How many of the harvested potatoes did Isabel save to plant next year?

A) 66
B) 76
C) 84
D) 86

2



What is the y-intercept of the graph shown?

A) (0, 0)
B) (0, 2)
C) (2, 0)
D) (2, 2)

3

What length, in centimeters, is equivalent to a length of 51 meters? (1 meter = 100 centimeters)

A) 0.051
B) 0.51
C) 5,100
D) 51,000

4

A bus is traveling at a constant speed along a straight portion of road. The equation $d = 30t$ gives the distance d, in feet from a road marker, that the bus will be t seconds after passing the marker. How many feet from the marker will the bus be 2 seconds after passing the marker?

A) 30
B) 32
C) 60
D) 90

5

Which expression is equivalent to $20w - (4w + 3w)$?

A) $10w$
B) $13w$
C) $19w$
D) $21w$

CONTINUE

6

If $6 + x = 9$, what is the value of $18 + 3x$?

7

$$y = x^2 - 14x + 22$$

The given equation relates the variables x and y. For what value of x does the value of y reach its minimum?

8

Which expression is equivalent to $9x^2 + 5x$?

A) $x(9x + 5)$

B) $5x(9x + 1)$

C) $9x(x + 5)$

D) $x^2(9x + 5)$

9

In triangle ABC, the measure of angle B is 52° and the measure of angle C is 17°. What is the measure of angle A ?

A) 21°

B) 35°

C) 69°

D) 111°

10

$$x = 8$$
$$y = x^2 + 8$$

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

A) 8

B) 24

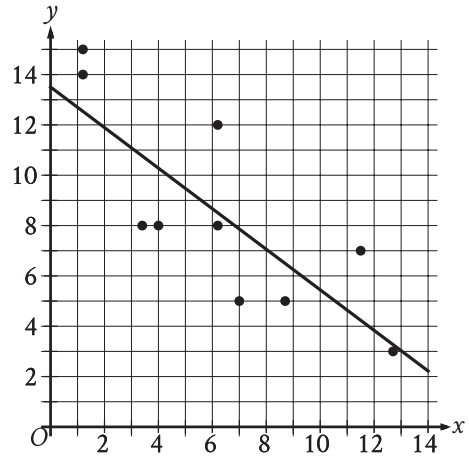
C) 64

D) 72

CONTINUE

11

The scatterplot shows the relationship between two variables, x and y. A line of best fit is also shown.



Which of the following equations best represents the line of best fit shown?

A) $y = 13.5 + 0.8x$

B) $y = 13.5 - 0.8x$

C) $y = -13.5 + 0.8x$

D) $y = -13.5 - 0.8x$

12

The function f is defined by $f(x) = 8\sqrt{x}$. For what value of x does $f(x) = 48$?

A) 6

B) 8

C) 36

D) 64

13

A circle has center O, and points R and S lie on the circle. In triangle ORS, the measure of $\angle ROS$ is 88°. What is the measure of $\angle RSO$, in degrees?

14

$$x(x + 1) - 56 = 4x(x - 7)$$

What is the sum of the solutions to the given equation?

15

$$y = 3x$$
$$2x + y = 12$$

The solution to the given system of equations is (x, y). What is the value of $5x$?

A) 24

B) 15

C) 12

D) 5

CONTINUE

16

A cube has an edge length of 41 inches. What is the volume, in cubic inches, of the cube?

A) 164

B) 1,681

C) 10,086

D) 68,921

17

$$p(t) = 90{,}000(1.06)^t$$

The given function p models the population of Lowell t years after a census. Which of the following functions best models the population of Lowell m months after the census?

A) $r(m) = \frac{90{,}000}{12}(1.06)^m$

B) $r(m) = 90{,}000\left(\frac{1.06}{12}\right)^m$

C) $r(m) = 90{,}000\left(\frac{1.06}{12}\right)^{\frac{m}{12}}$

D) $r(m) = 90{,}000(1.06)^{\frac{m}{12}}$

18

$$6x + 7y = 28$$
$$2x + 2y = 10$$

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

A) -2

B) 7

C) 14

D) 18

19

The minimum value of x is 12 less than 6 times another number n. Which inequality shows the possible values of x ?

A) $x \leq 6n - 12$

B) $x \geq 6n - 12$

C) $x \leq 12 - 6n$

D) $x \geq 12 - 6n$

20

Data set A consists of the heights of 75 buildings and has a mean of 32 meters. Data set B consists of the heights of 50 buildings and has a mean of 62 meters. Data set C consists of the heights of the 125 buildings from data sets A and B. What is the mean, in meters, of data set C?

CONTINUE

21

The graph of $9x - 10y = 19$ is translated down 4 units in the xy-plane. What is the x-coordinate of the x-intercept of the resulting graph?

22

Two variables, x and y, are related such that for each increase of 1 in the value of x, the value of y increases by a factor of 4. When $x = 0$, $y = 200$. Which equation represents this relationship?

A) $y = 4(x)^{200}$

B) $y = 4(200)^{x}$

C) $y = 200(x)^{4}$

D) $y = 200(4)^{x}$

23

$$x^2 - 2x - 9 = 0$$

One solution to the given equation can be written as $1 + \sqrt{k}$, where k is a constant. What is the value of k ?

A) 8

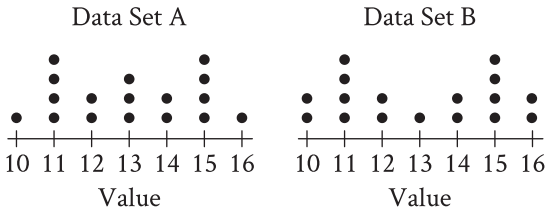
B) 10

C) 20

D) 40

24

The dot plots represent the distributions of values in data sets A and B.



Which of the following statements must be true?

I. The median of data set A is equal to the median of data set B.

II. The standard deviation of data set A is equal to the standard deviation of data set B.

A) I only

B) II only

C) I and II

D) Neither I nor II

25

An isosceles right triangle has a perimeter of $94 + 94\sqrt{2}$ inches. What is the length, in inches, of one leg of this triangle?

A) 47

B) $47\sqrt{2}$

C) 94

D) $94\sqrt{2}$

CONTINUE

26

$$-9x^2 + 30x + c = 0$$

In the given equation, c is a constant. The equation has exactly one solution. What is the value of c ?

A) 3

B) 0

C) −25

D) −53

27

$$\frac{3}{2}y - \frac{1}{4}x = \frac{2}{3} - \frac{3}{2}y$$

$$\frac{1}{2}x + \frac{3}{2} = py + \frac{9}{2}$$

In the given system of equations, p is a constant. If the system has no solution, what is the value of p ?

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.