CHAPTER 22

Math: Questions—Algebra Drills

1

$$3a + 4b = 25$$

A shipping company charged a customer $25 to ship some small boxes and some large boxes. The given equation represents the relationship between a, the number of small boxes, and b, the number of large boxes, the customer had shipped. If the customer had 3 small boxes shipped, how many large boxes were shipped?

A) 3

B) 4

C) 5

D) 6

2

$$ax = 5$$

In the given equation, a is a constant. For which of the following values of a will the equation have no solution?

A) 0

B) 1

C) 5

D) 10

3

Tom scored 85, 78, and 98 on his first three exams in history class. Solving which inequality gives all the possible scores, G, that Tom could get on his fourth exam that will result in a mean score on all four exams of at least 90?

A) $90 - (85 + 78 + 98) \leq 4G$

B) $4G + 85 + 78 + 98 \geq 360$

C) $\frac{(G + 85 + 78 + 98)}{4} \geq 90$

D) $\frac{(85 + 78 + 98)}{4} \geq 90 - 4G$

4

If $3(3x + 5) = 2x - 8$, what is the value of x?

A) $-\frac{23}{7}$

B) $-\frac{15}{7}$

C) $-\frac{13}{7}$

D) $\frac{7}{11}$

5

On Monday, Jao walked a total of 11,400 steps. On Tuesday, Jao has a goal to walk at least 1,500 more steps than he did on Monday. What is the least number of steps Jao could walk on Tuesday to meet his goal?

6

$$x - 3y = 7$$

$$3y = 9$$

If (x, y) is the solution to the given system of equations, what is the value of x?

A) -2

B) 10

C) 16

D) 34

7

$$P = 1.20x + 5.00$$

The given equation gives the total monthly price P, in dollars, for using an online gaming service. The total monthly price for the online service consists of a flat monthly fee and a charge for each game played during a month. Of the following, which is the best interpretation of the value of x in this context?

A) The number of games played during a month

B) The charge, in dollars, for playing x games

C) The flat monthly fee, in dollars, for the gaming service

D) The number of months the gaming service was used

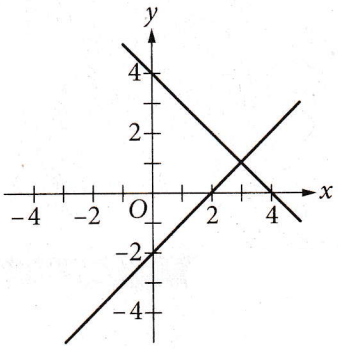
8

$$x + y = 4$$

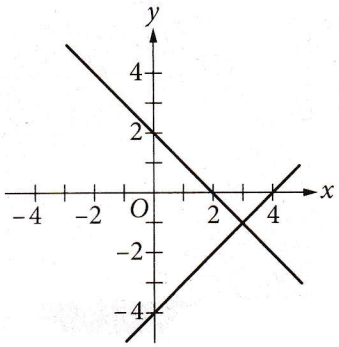
$$x - y = 2$$

Which of the following is the graph in the xy-plane of the given system of equations?

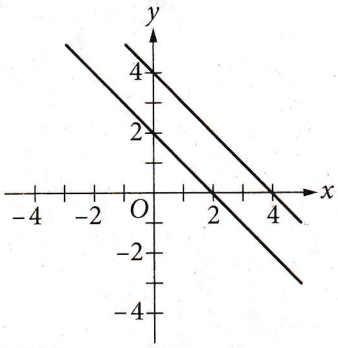
A)



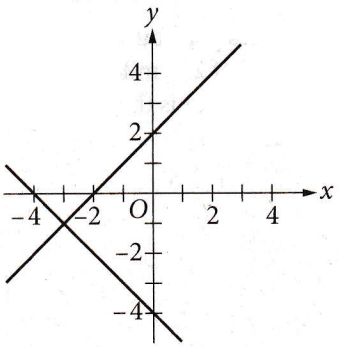
B)



C)



D)



9

Nayya burns 5 kilocalories per minute running on a treadmill and 10 kilocalories per minute pedaling on a stationary bike. Which of the following equations represents the total number of kilocalories, T, Nayya has burned after running on the treadmill for 50 minutes and pedaling on the stationary bike for m minutes?

A) $T = 15m + 50$

B) $T = 50m + 50$

C) $T = 5m + 500$

D) $T = 10m + 250$

10

$$f(x) = \frac{(x+7)}{4}$$

For the function f defined as shown, what is the value of $f(9) - f(1)$?

A) 1

B) 2

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

D) $\frac{9}{4}$

11

In the xy-plane, line l contains the points (2, 6) and (8, 10). Which of the following is an equation of line l?

A) $y = \frac{2}{3}x + \frac{14}{3}$

B) $y = \frac{3}{2}x - 2$

C) $y = 2x + 6$

D) $y = 8x + 10$

12

During a month, Morgan ran r miles at 5 miles per hour and biked b miles at 10 miles per hour. She ran and biked a total of 200 miles that month, and she biked for twice as many hours as she ran. What is the total number of miles that Morgan biked during the month?

A) 80

B) 100

C) 120

D) 160

13

The equation $c = \frac{5}{4}x + 406$ gives the total cost c, in dollars, to produce a quantity of x units. If the quantity of units produced increases by 39 units, what is the corresponding increase in the total cost, in dollars?

14

$$kx - 3y = 4$$
$$4x - 5y = 7$$

In the given system of equations, k is a constant and x and y are variables. For what value of k will the system of equations have no solution?

A) $\frac{12}{5}$

B) $\frac{16}{7}$

C) $-\frac{16}{7}$

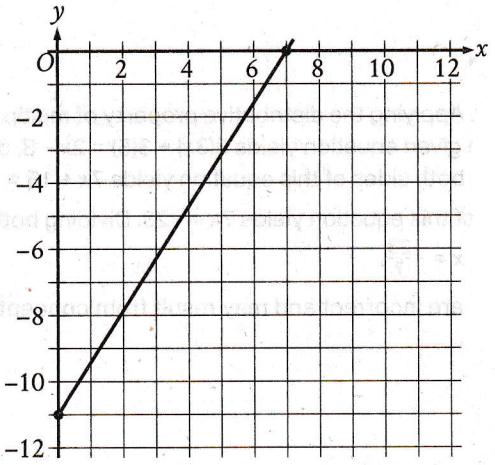
D) $-\frac{12}{5}$

15

x	y
−10	66
−5	45
5	3
10	−18

The table shows four values of x and their corresponding values of y. There is a linear relationship between x and y. If an equation representing this relationship is written in the form $Ax + 5y = C$, where A and C are constants, what is the value of C?

16



The point $(3, d)$ lies on the line shown. What is the value of d?

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1. B
2. A
3. C
4. A
5. 12,900
6. C
7. A
8. A
9. D
10. B
11. A
12. D
13. 48.75
14. A
15. 120
16. $-\frac{44}{7}$

Answer explanations can be found in the SAT Official Guide on pages 224 to 228.