

SAT Math

Systems of Linear Equations 3

Question # ID

3.1 d1b66ae6

$$\begin{aligned} -x + y &= -3.5 \\ x + 3y &= 9.5 \end{aligned}$$

If (x, y) satisfies the system of equations above, what is the value of y ?

3.2 70feb725

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

3.3 e1248a5c

In the system of equations below, a and c are constants.

$$\frac{1}{2}x + \frac{1}{3}y = \frac{1}{6}$$

$$ax + y = c$$

If the system of equations has an infinite number of solutions (x, y) , what is the value of a ?

- A. $-\frac{1}{2}$
- B. 0
- C. $\frac{1}{2}$
- D. $\frac{3}{2}$

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Question # ID

3.4 52cb8ea4

$$\begin{aligned}7x - 5y &= 4 \\ 4x - 8y &= 9\end{aligned}$$

If (x, y) is the solution to the system of equations above, what is the value of $3x + 3y$?

- A. -13
- B. -5
- C. 5
- D. 13

3.5 d7bf55e1

A movie theater sells two types of tickets, adult tickets for \$12 and child tickets for \$8. If the theater sold 30 tickets for a total of \$300, how much, in dollars, was spent on adult tickets? (Disregard the \$ sign when gridding your answer.)

3.6 f718c9cf

$$\begin{aligned}5x + 14y &= 45 \\ 10x + 7y &= 27\end{aligned}$$

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

3.7 466b87e3

$$\begin{aligned}y &= \frac{1}{2}x + 8 \\ y &= cx + 10\end{aligned}$$

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

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Question # ID
3.8 e2e3942f

$$\begin{aligned}y &= 2x + 1 \\ y &= ax - 8\end{aligned}$$

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

- A. $-\frac{1}{2}$
- B. 0
- C. 1
- D. 2

3.9 1e11190a

Store A sells raspberries for \$5.50 per pint and blackberries for \$3.00 per pint. Store B sells raspberries for \$6.50 per pint and blackberries for \$8.00 per pint. A certain purchase of raspberries and blackberries would cost \$37.00 at Store A or \$66.00 at Store B. How many pints of blackberries are in this purchase?

- A. 4
- B. 5
- C. 8
- D. 12

3.10 567ac7ab

One of the two equations in a linear system is $2x + 6y = 10$. The system has no solution. Which of the following could be the other equation in the system?

- A. $x + 3y = 5$
- B. $x + 3y = -20$
- C. $6x - 2y = 0$
- D. $6x + 2y = 10$

3.11 a71b1bc1

A piece of wire with a length of 32 inches is cut into two parts. One part has a length of x inches, and the other part has a length of y inches. The value of x is 4 more than 3 times the value of y . What is the value of x ?

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3.12 1b1deebe

$$ax + by = 72$$

$$6x + 2by = 56$$

In the given system of equations, a and b are constants. The graphs of these equations in the xy -plane intersect at the point $(4, y)$. What is the value of a ?

- A. 3
- B. 4
- C. 6
- D. 14

3.13 ff501705

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

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

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

3.14 f75bd744

$$4x - 6y = 10y + 2$$

$$ty = \frac{1}{2} + 2x$$

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

3.15 adb0c96c

$$24x + y = 48$$

$$6x + y = 72$$

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

3.16 fb5e7f59

$$-x - wy = -337$$

$$2x - wy = 47$$

In the given system of equations, w is a constant. In the xy -plane, the graphs of these equations intersect at the point $(q, 19)$, where q is a constant. What is the value of w ?

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3.17 1e0a46e4

Which system of linear equations has no solution?

A. $-2x + 3y = -9$
 $2x - 3y = 9$

B. $2x - 3y = 9$
 $3x + 4y = 10$

C. $2x - 3y = 9$
 $-6x + 9y = -27$

D. $-2x + 3y = 9$
 $4x - 6y = 18$

3.18 f03465dc

$$8x + 7y = 9$$
$$24x + 21y = 27$$

For each real number r , which of the following points lies on the graph of each equation in the xy -plane for the given system?

A. $(r, -\frac{8r}{7} + \frac{9}{7})$

B. $(-\frac{8r}{7} + \frac{9}{7}, r)$

C. $(-\frac{8r}{7} + 9, \frac{8r}{7} + 27)$

D. $(\frac{r}{3} + 9, -\frac{r}{3} + 27)$