

Systems of Linear Equations Packet**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Solve the system of equations.

$$4x + 3y = 16$$

$$x = -3y + 13$$

a. (1,4)

b. (-1,4)

- _____ 2. Solve the system of equations.

$$x + y = -3$$

$$x - y = -5$$

a. (4,2)

c. (-4,1)

b. (-5,2)

d. (-5,4)

- _____ 3. Franco is solving a system of linear equations algebraically. He find that there are an infinite number of solutions. Which is a possible step in his solution?

a. $5 = 5 + 1$

b. $-5 = 5$

c. $11 = 5$

d. $5 = 5$

- _____ 4. Giovanni solves a system of equations algebraically. He concludes that the lines are parallel. Which could be the final line of his solution?

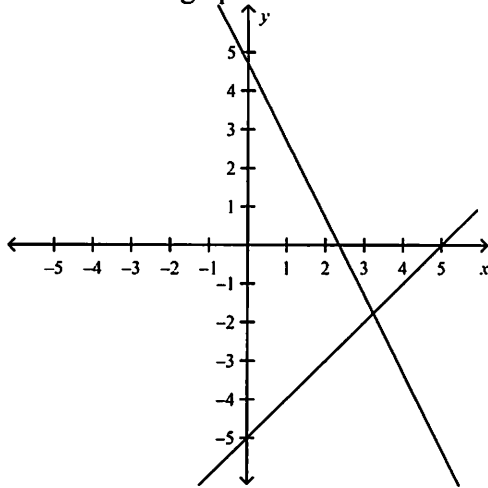
a. $-5 = -5$

b. $-5 = -5 + 1$

c. $11 = 11$

d. $5 = 5$

_____ 5. Carla uses the graph to find a solution.



Explain why the solution is an estimate.

- The lines do not intersect.
- Neither graph goes through the origin, so there is no solution.
- The coordinates of the solution are not whole numbers.
- The accuracy is limited because the x -axis and y -axis both extend only from -5 to 5.

_____ 6. Chloe, Tarina, and Lizette solved the system of equations shown.

$$\frac{2}{3}x + 3y = 26$$

$$2x + \frac{1}{2}y = 27$$

Chloe claims the solution is (3, 8). Tarina claims the solution is (-6, 10).
Lizette claims the solution is (12, 6). Which statement is true?

- | | |
|----------------------------------|---------------------------------------|
| a. Chloe's solution is correct. | c. Lizette's solution is correct. |
| b. Tarina's solution is correct. | d. None of the solutions are correct. |

_____ 7. Which system of linear equations has no solution?

- | | |
|------------------|------------------|
| a. $x + y = 9$ | c. $2x + y = 4$ |
| $x - y = 3$ | $x - 3y = 9$ |
| b. $-5x = 9 - y$ | d. $4x + 3y = 5$ |
| $-5x + y = 3$ | $3x - 2y = 14$ |

___ 8. What is the solution of the linear system?

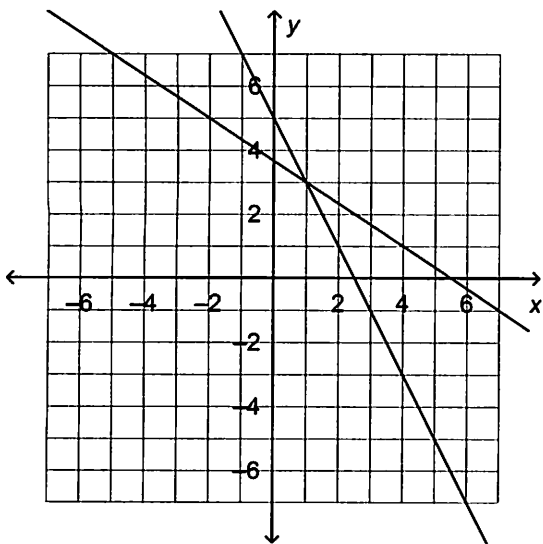
$$\begin{aligned}3x - 2y &= 1 \\ -x + 4y &= -27\end{aligned}$$

- a. $(-9, -9)$ c. $(-13, -10)$
b. $(-7, -10)$ d. $(-5, -8)$

___ 9. How can you tell if an ordered pair is a solution of a system of linear equations by examining the graphs of the equations?

- a. Neither line passes through the point represented by the ordered pair.
b. Just one of the lines passes through the point represented by the ordered pair.
c. Both lines pass through the point represented by the ordered pair.
d. You cannot tell whether an ordered pair is a solution of a system of linear equations by examining the graphs of the equations.

___ 10. Is the ordered pair $(1, 4)$ a solution of the system of equations whose graph is shown? Explain.



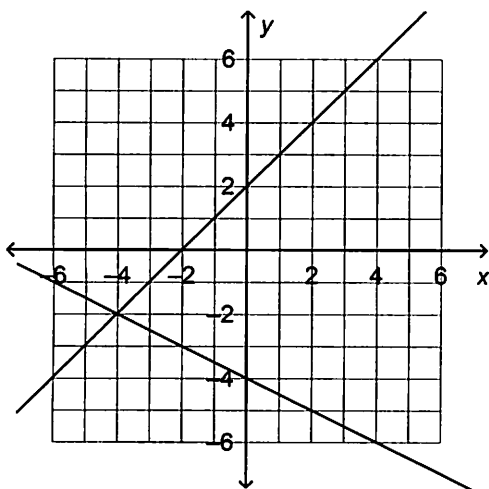
- a. Yes, because the lines intersect at the point $(1, 4)$.
b. Yes, because one line passes through the point $(1, 4)$.
c. No, because just one line passes through the point $(1, 4)$.
d. No, because neither line passes through the point $(1, 4)$.

___ 11. Does the ordered pair $(-5, 3)$ satisfy the system of equations? Explain.

$$\begin{cases} y = -2x - 1 \\ y = -\frac{3}{5}x \end{cases}$$

- Yes, because the ordered pair $(-5, 3)$ satisfies both equations of the system.
- No, because the ordered pair $(-5, 3)$ satisfies only the equation $y = -2x - 1$.
- No, because the ordered pair $(-5, 3)$ satisfies only the equation $y = -\frac{3}{5}x$.
- No, because the ordered pair $(-5, 3)$ satisfies neither equation of the system.

___ 12. Which ordered pair is the solution of the system of linear equations?



- $(-4, -2)$
- $(-4, 2)$
- $(-2, -4)$
- $(2, 4)$

___ 13. What solution(s) does the system of equations have?

$$\begin{cases} -2x + 5y = 10 \\ -4x + 10y = 20 \end{cases}$$

- There are infinitely many solutions.
- The only solution is $(5, 4)$.
- The only solution is $(10, 6)$.
- There are no solutions.

_____ 14. To solve the system of equations $\begin{cases} 4x + y = -12 \\ 5x + 2y = 25 \end{cases}$, what expression should be substituted for y in the equation $5x + 2y = 25$?

- a. $-\frac{y}{4} - 3$
- b. $-4x - 12$
- c. $-\frac{5}{2}x + \frac{25}{2}$
- d. $-\frac{2}{5}y + 5$

_____ 15. Trudy and Xander are saving money from their newspaper route earnings. Their savings s , in dollars, is related to the time t , in weeks, after they start working. Trudy's savings are given by the equation $s = 40t + 50$, and Xander's savings are given by the equation $s = 35t + 100$. What is the meaning of the solution of the system of equations?

- a. Trudy and Xander both have \$450 saved after 10 weeks of working on their newspaper routes.
- b. Trudy and Xander both have \$10 saved after 450 weeks of working on their newspaper routes.
- c. Trudy and Xander both have \$170 saved after 2 weeks of working on their newspaper routes.
- d. Trudy and Xander both have \$130 saved after 2 weeks of working on their newspaper routes.

_____ 16. There are 25 coins inside a container. Some of the coins are nickels, and the rest are quarters. The value of the coins is \$4.05. Let n represent the number of nickels, and let q represent the number of quarters. Which system of equations represents this situation?

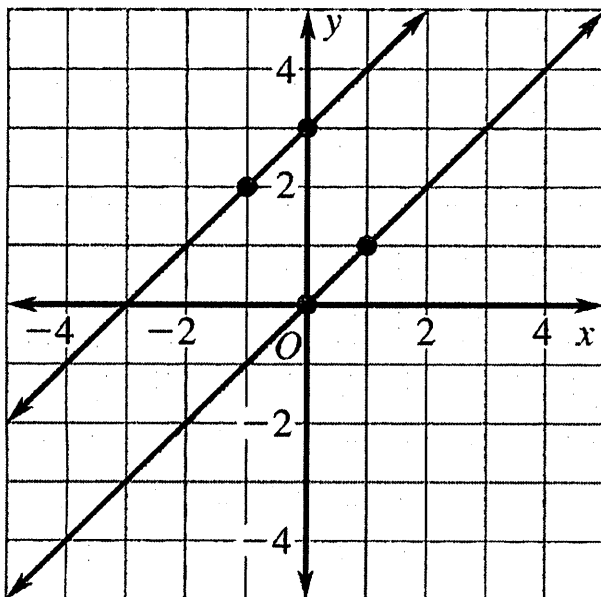
- a. $\begin{cases} n - q = 25 \\ 0.05n + 0.25q = 4.05 \end{cases}$
- b. $\begin{cases} n + q = 4.05 \\ 0.05n + 0.25q = 25 \end{cases}$
- c. $\begin{cases} n + q = 25 \\ 0.05n + 0.25q = 4.05 \end{cases}$
- d. $\begin{cases} n + q = 25 \\ 5n + 25q = 4.05 \end{cases}$

___ 17. The line that passes through the points $(-5, -6)$ and $(-3, 2)$ and the line $y = x - 4$ intersect at what point?

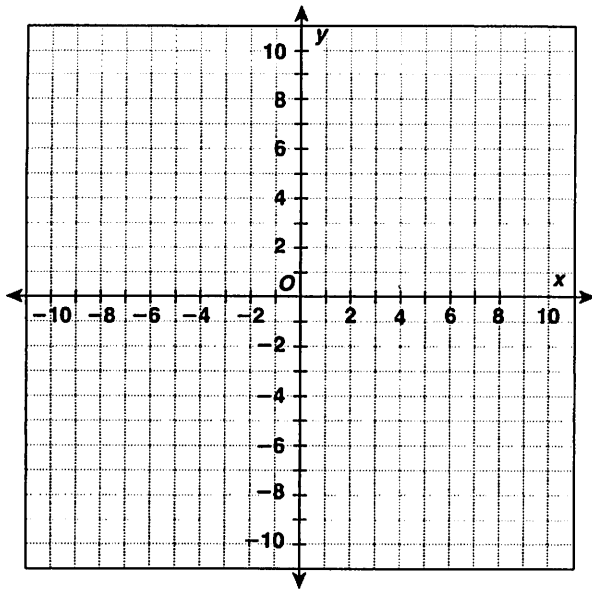
- a. $(-5, -6)$
- b. $(2, -2)$
- c. $(-3, 2)$
- d. $(-6, -10)$

Short Answer: Write your answer

1. The graph of a system of linear equations is shown. Write the solution of the system.

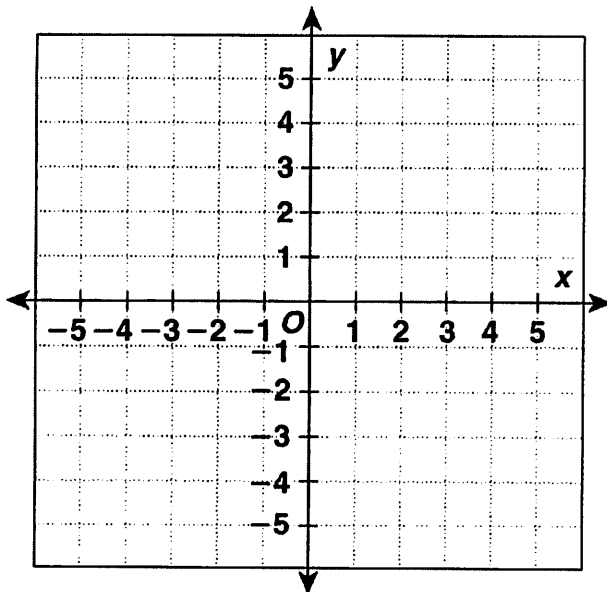


2. Solve $\begin{cases} y = x - 3 \\ y = -x + 5 \end{cases}$ by graphing.



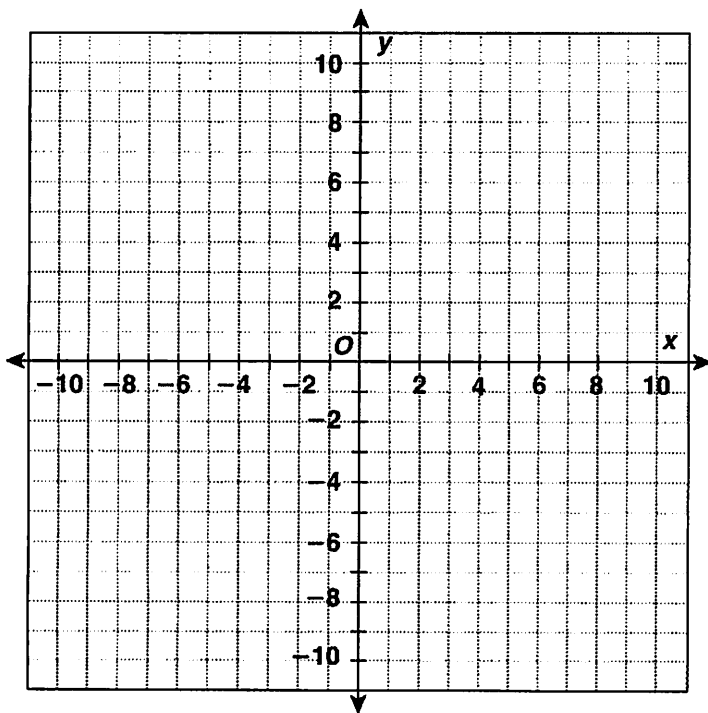
Solution _____

3. Solve $\begin{cases} 4x + y = -1 \\ y - 4 = x \end{cases}$ by graphing.



Solution _____

4. Solve $\begin{cases} y - 2 = \frac{1}{3}x \\ 3y = -2x - 3 \end{cases}$ by graphing.



Solution _____

5. Solve the system of equations.

$$y = 2x + 5$$

$$y = 3x + 4$$

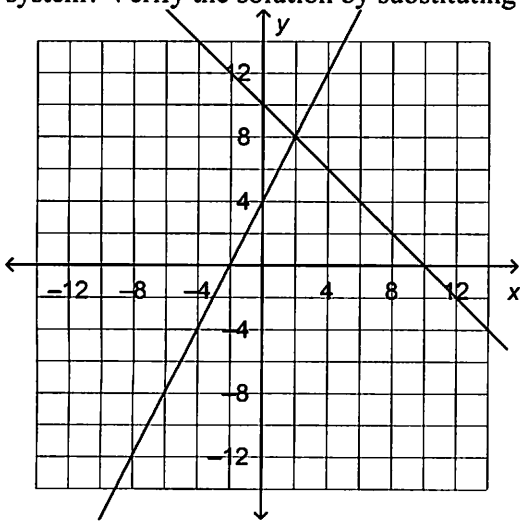
Solution: _____

6. Solve the system using any algebraic method.

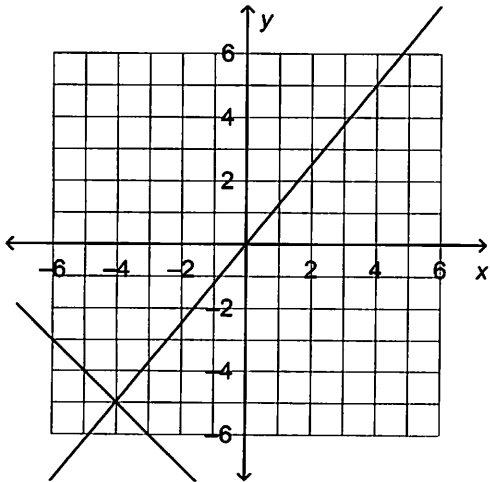
$$\begin{aligned}x - y &= -5 \\x + y &= 11\end{aligned}$$

Solution _____

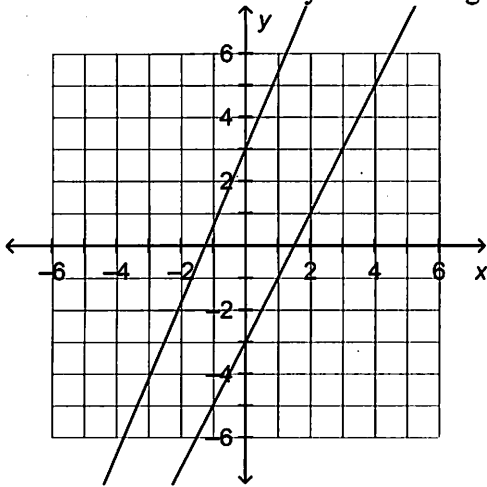
7. The graph of the system of linear equations $x + y = 10$ and $-2x + y = 4$ is shown. What is the solution of the system? Verify the solution by substituting it into each equation.



8. Is the ordered pair $(-5, -4)$ a solution of the system of linear equations whose graph is shown? Explain your reasoning.



9. Matt concluded that the system whose graph is shown has no solution. Is he correct? Explain your reasoning.



10. Solve the system of equations by examining the equations. Explain your reasoning.

$$\begin{cases} -2x + 4y = 5 \\ -2x + 4y = 6 \end{cases}$$

11. A line has a slope of $-\frac{1}{3}$ and a y -intercept of 8. Another line passes through the points $(-3, -5)$ and $(1, 3)$. Find the equations of the lines, and then determine the point where the lines intersect.

