

Solving Two Equations—Addition/Elimination Method I

Solve the following problems by using the elimination method. Write the point of intersection on the line provided.

Problem 1 is modeled for you below:

Solutions:

1.
$$\begin{cases} x + y = 2 \\ x - y = 0 \end{cases}$$

<p><i>Add equations together.</i></p> $\begin{array}{r} x + y = 2 \\ + \ x - y = 0 \\ \hline 2x = 2 \\ \text{Therefore } x = 1 \end{array}$	<p><i>Now substitute into equation.</i></p> $\begin{array}{l} 1 + y = 2 \rightarrow 1 + 1 = 2 \\ 1 - y = 0 \rightarrow 1 - 1 = 0 \end{array}$ <p><i>In each case, y = 1 to make the equation true.</i></p>
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$x = 1, y = 1$

(1,1) is the point of intersection for the two equations, the solution to the system of equations.

2.
$$\begin{cases} x + 3y = 5 \\ 5x - 3y = 7 \end{cases}$$

3.
$$\begin{cases} 2x + 2y = 0 \\ 4x - 2y = 12 \end{cases}$$

4.
$$\begin{cases} 9x - 8y = 12 \\ -9x + 4y = -24 \end{cases}$$

5.
$$\begin{cases} 5x - 2y = -13 \\ 4x + 2y = 22 \end{cases}$$

Solving Two Equations—The Substitution Method II

Solve the equations below for x and y . Then place the y -values in the squares of the cross-number puzzle at the bottom of the page. Use a separate sheet of paper for your work.

Across

1. $x + y = 25$ $x =$ _____
 $y = 4x$ $y =$ _____

2. $x = y + 8$ $x =$ _____
 $2x + y = 52$ $y =$ _____

3. $3x = y$ $x =$ _____
 $2x = y - 10$ $y =$ _____

5. $3x + y = 33$ $x =$ _____
 $x = y - 13$ $y =$ _____

7. $x - y = -10$ $x =$ _____
 $3x = y + 18$ $y =$ _____

Down

1. $x + y = 34$ $x =$ _____
 $y = x + 14$ $y =$ _____

2. $y = 5x$ $x =$ _____
 $6x - y = 2$ $y =$ _____

4. $2x - y = 6$ $x =$ _____
 $x - y = -4$ $y =$ _____

6. $y + 3x = 28$ $x =$ _____
 $4x + y = 10$ $y =$ _____

7. $x + y = 30$ $x =$ _____
 $y = x + 16$ $y =$ _____

