

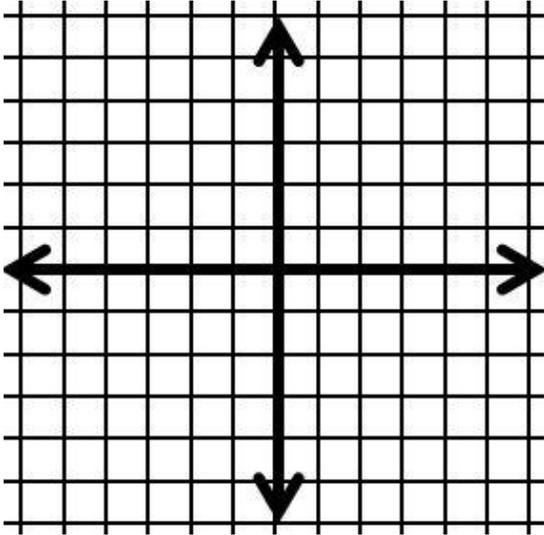
# Solving Systems of Equations

## Example 1:

Solve the linear system by graphing.

$$-x + 2y = 3$$

$$2x + y = 4$$



## Example 7:

Solve the linear system using the elimination method.

$$4x + 3y = 8$$

$$x - 2y = 13$$

# Elimination

## Example 5:

Solve the linear system using the elimination method.

$$\begin{cases} 4x - 3y = 5 \\ -2x + 3y = -7 \end{cases}$$

## Example 6:

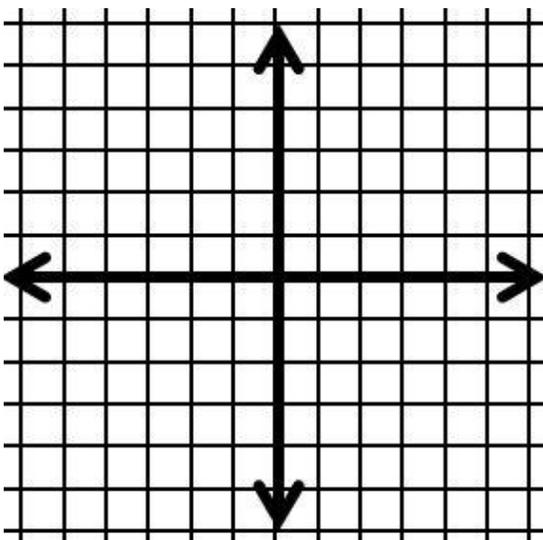
Solve the linear system using the elimination method.

$$\begin{cases} 7x - 2y = 5 \\ 7x - 3y = 4 \end{cases}$$

## Example 3:

Solve the linear system by graphing.

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



Graphing

### Example 3:

Solve the linear system using the substitution method.

$$\begin{cases} y = 2x + 5 \\ 3x + y = 10 \end{cases}$$

### Example 4:

Solve the linear system using the substitution method.

$$\begin{cases} x - y = 3 \\ x + 2y = -6 \end{cases}$$

Substitution

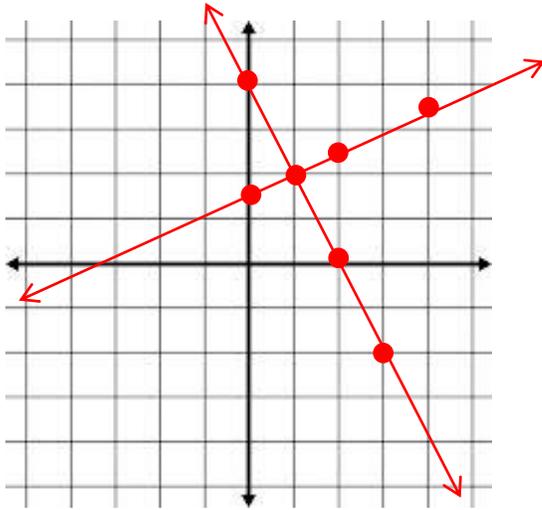
# Answer Key!

Solving Systems  
of Equations

# Example 1:

Solve the linear system by graphing.

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



$$\begin{array}{r} -x + 2y = 3 \\ +x \quad +x \end{array}$$

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

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

$$\begin{array}{r} 2x + y = 4 \\ -2x \quad -2x \end{array}$$

$$y = -2x + 4$$

**SOLUTION:**  
**(1,2)**

# Example 7:

Solve the linear system using the elimination method.

$$\begin{cases} 4x + 3y = 8 \\ x - 2y = 13 \end{cases}$$

$$\begin{array}{r} 4x + 3y = 8 \\ 4x + 3(-4) = 8 \\ 4x - 12 = 8 \\ \hline \quad \quad +12 \quad +12 \end{array}$$

$$\frac{4x}{4} = \frac{20}{4}$$

$$x = 5$$

**SOLUTION**  
**(5, -4)**

$$\begin{array}{r} 4x + 3y = 8 \\ (x - 2y = 13) \times -4 \end{array} \rightarrow \begin{array}{r} 4x + 3y = 8 \\ -4x + 8y = -52 \\ \hline \end{array}$$

$$\frac{11y}{11} = \frac{-44}{11}$$

$$y = -4$$

# Elimination

## Example 5:

Solve the linear system using the elimination method.

$$\begin{cases} 4x - 3y = 5 \\ -2x + 3y = -7 \end{cases}$$

$$\begin{array}{r} 4x - 3y = 5 \\ (+) -2x + 3y = -7 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{-2}{2}$$

$$x = -1$$

$$\begin{array}{r} 4x - 3y = 5 \\ 4(-1) - 3y = 5 \\ -4 - 3y = 5 \\ +4 \quad +4 \\ \hline \end{array}$$

$$\frac{-3y}{-3} = \frac{9}{-3}$$

$$y = -3$$

**SOLUTION (-1, -3)**

## Example 6:

Solve the linear system using the elimination method.

$$\begin{cases} 7x - 2y = 5 \\ 7x - 3y = 4 \end{cases}$$

$$\begin{array}{r} 7x - 2y = 5 \\ (-) 7x - 3y = 4 \\ \hline \end{array}$$

$$y = 1$$

$$\begin{array}{r} 7x - 2y = 5 \\ 7x - 2(1) = 5 \\ 7x - 2 = 5 \\ +2 \quad +2 \\ \hline \end{array}$$

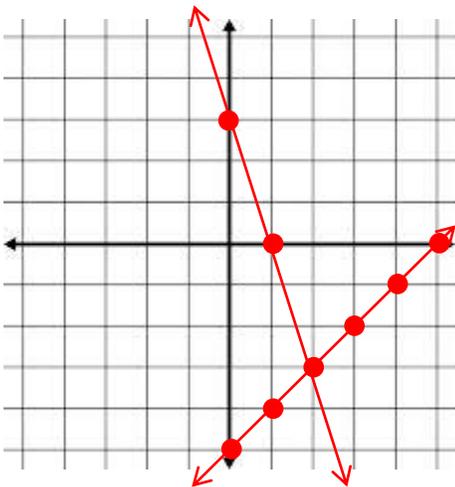
$$\frac{7x}{7} = \frac{7}{7}$$

$$x = 1$$

**SOLUTION (1, 1)**

## Example 2:

Solve the linear system by graphing.



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

$$\begin{array}{r} x - y = 5 \\ -x \quad -x \\ \hline -y = -x + 5 \end{array}$$

$$y = x - 5$$

**SOLUTION (2, -3)**

$$\begin{array}{r} 3x + y = 3 \\ -3x \quad -3x \\ \hline \end{array}$$

$$y = -3x + 3$$

# Graphing

## Example 3:

Solve the linear system using the substitution method.

$$\begin{cases} y = 2x + 5 \\ 3x + y = 10 \end{cases}$$

$$\begin{array}{r} y = 2x + 5 \\ 3x + y = 10 \\ 3x + (2x + 5) = 10 \\ 5x + 5 = 10 \\ \quad -5 \quad -5 \\ \hline 5x = 5 \\ x = 1 \end{array}$$

$$\begin{array}{l} y = 2x + 5 \\ y = 2(1) + 5 \\ y = 2 + 5 \\ y = 7 \end{array}$$

**SOLUTION (1,7)**

## Example 4:

Solve the linear system using the substitution method.

$$\begin{cases} x - y = 3 \\ x + 2y = -6 \end{cases}$$

$$\begin{array}{r} x - y = 3 \\ +y \quad +y \\ \hline x = y + 3 \\ x + 2y = -6 \\ (y + 3) + 2y = -6 \\ 3y + 3 = -6 \\ \quad -3 \quad -3 \\ \hline 3y = -9 \\ \frac{3y}{3} = \frac{-9}{3} \\ y = -3 \end{array}$$

$$\begin{array}{l} x - (-3) = 3 \\ x + 3 = 3 \\ \quad -3 \quad -3 \\ \hline x = 0 \end{array}$$

**SOLUTION (0, -3)**

Substitution

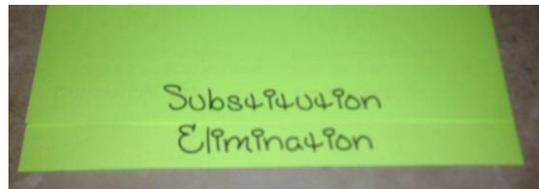
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Directions:

Step 1: Print the pages front to back (pages 1 & 2, and pages 3 & 4) so that the writing faces in opposite directions,

Step 2: Line up the pages as follows:



Step 3: Fold over the top portion so that "graphing" is just above "substitution".

The final product should look like this:

