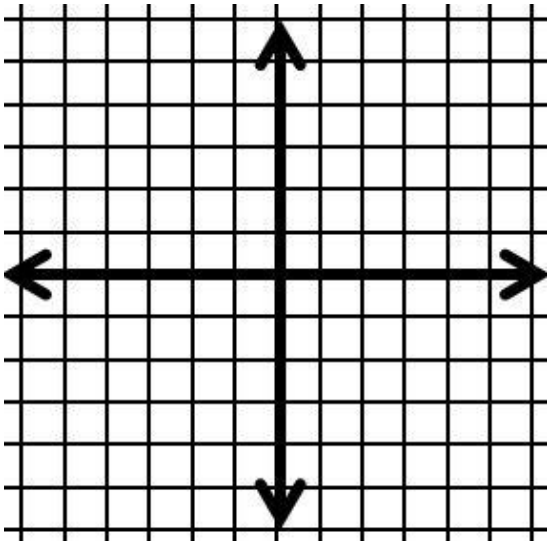


Solving Systems of Equations

Example 1:

Solve the linear system by graphing.

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



Example 7:

Solve the linear system using the elimination method.

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

Elimination

Example 5:

Solve the linear system using the elimination method.

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

Example 6:

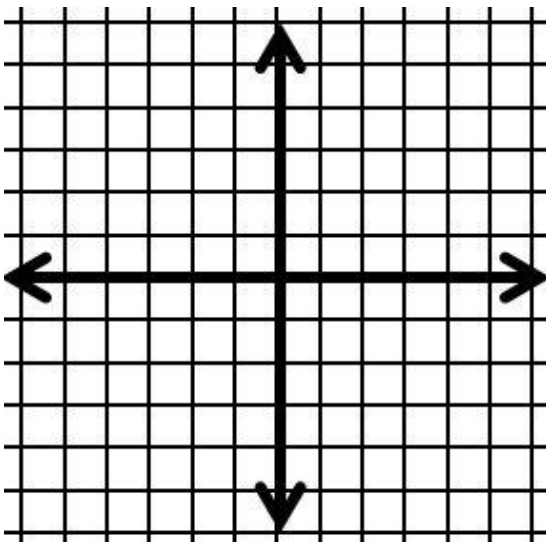
Solve the linear system using the elimination method.

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

Example 7:

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

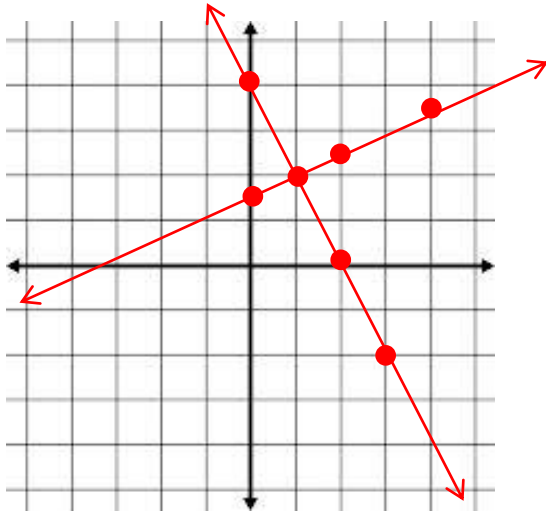
Answer Key!

Solving Systems
of Equations

Example 1:

Solve the linear system by graphing.

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



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

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

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

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

$$y = -2x + 4$$

SOLUTION:
(1, 2)

Example 7:

Solve the linear system using the elimination method.

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

$$\begin{array}{rcl} 4x + 3y = 8 & \rightarrow & 4x + 3y = 8 \\ (x - 2y = 13) \times -4 & \rightarrow & -4x + 8y = -52 \\ \hline & & 11y = -44 \\ & & \frac{11}{11} \quad \frac{-44}{11} \end{array}$$

$$y = -4$$

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

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

$$x = 5$$

SOLUTION
(5, -4)

Elimination

Example 5:

Solve the linear system using the elimination method.

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

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

$$\begin{array}{r} 2x = -2 \\ \hline 2 \quad 2 \\ \hline \end{array}$$

$$x = -1$$

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

$$\begin{array}{r} -3y = 9 \\ -3 \quad -3 \\ \hline \end{array}$$

$$y = -3$$

SOLUTION (-1, -3)

Example 6:

Solve the linear system using the elimination method.

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

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

$$y = 1$$

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

$$\begin{array}{r} 7x = 7 \\ \hline 7 \quad 7 \\ \hline \end{array}$$

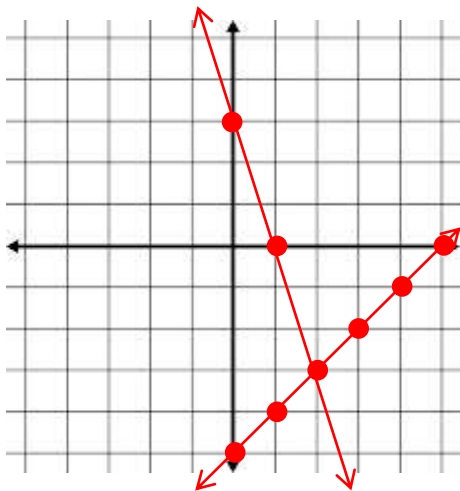
$$x = 1$$

SOLUTION (1, 1)

Example 2:

Solve the linear system by graphing.

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



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

$$y = x - 5$$

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

$$y = -3x + 3$$

SOLUTION (2, -3)

Graphing

Example 3:

Solve the linear system using the substitution method.

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

$$\begin{array}{rcl} y = 2x + 5 & \xrightarrow{\text{substitute}} & 3x + y = 10 \\ & & 3x + (2x + 5) = 10 \\ & & 5x + 5 = 10 \\ & & \quad -5 \quad -5 \\ & & \hline & & 5x = 5 \\ & & x = 1 \end{array}$$

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

SOLUTION (1,7)

Example 4:

Solve the linear system using the substitution method.

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

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

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

SOLUTION (0, -3)

Substitution

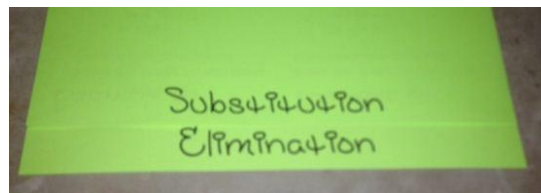
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Directions:

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:

