

Solve  
by



Graphing

Solve  
by



Substitution

Solve  
by



Elimination

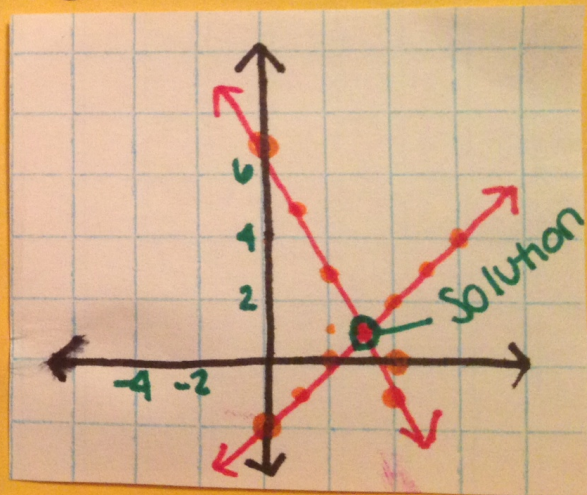
Step 1: find the y-int & slope of each line.

Step 2: graph the lines

Step 3: find the point of intersection

Step 4: the point of intersection is the solution!

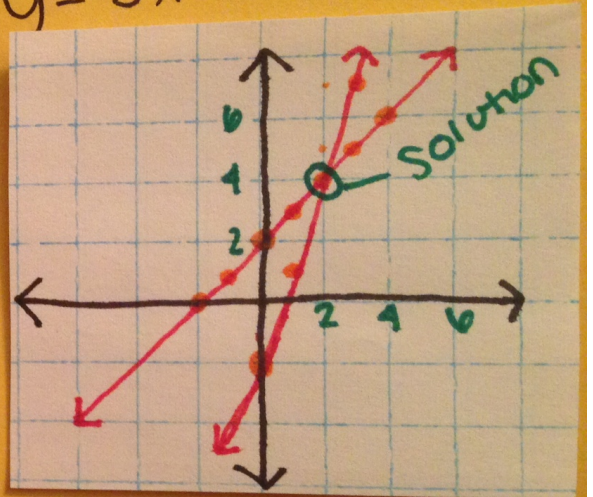
$$y = x - 2$$
$$y = -2x + 7$$



Solution  
(3, 1)

Solution  
(2, 4)

$$y = x + 2$$
$$y = 3x - 2$$



stitution

Step 1: Pick 1 of the equations & solve for 1 of the variables.

Step 2: Sub the expression you just found into the other equation & solve for variable.

Step 3: Sub variable solution into either equation & solve

Step 4: Write solution as a point

$$\begin{aligned} 4x + 2y &= 7 \\ y &= 5x \end{aligned}$$

$$4x + 2(5x) = 7$$

$$4x + 10x = 7$$

$$\frac{14x}{14} = \frac{7}{14}$$

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

$$y = 5\left(\frac{1}{2}\right)$$

$$y = \frac{5}{2}$$

Solution  
 $\left(\frac{1}{2}, \frac{5}{2}\right)$

Solve

$$y = 3x - 5$$

$$8x + y = -10$$

$$8x + (3x - 5) = -10$$

$$8x + 3x - 5 = -10$$

$$11x - 5 = -10$$

$$\frac{11x}{11} = \frac{-10 + 5}{11}$$

$$x = -1$$

$$y = 3(-1) - 5$$

$$y = -3 - 5$$

$$y = -8$$

Solution

$(-1, -8)$



Step 1: Make sure your equations are in standard form

$$x + y = 12$$

$$x - y = 2$$

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Step 2: Add or subtract the 2 equations to eliminate either x or y (You may need to mult. 1 or both equations to get the same coefficients on the variable.)

$$\frac{2x}{2} = \frac{14}{2}$$

$$x = 7$$

$$\begin{array}{r} 7 + y = 12 \\ -7 \quad -7 \end{array}$$

$$y = 5$$

Step 3: Solve for the remaining variable, then sub that value into either equation to solve for the other variable.

Solution = (7, 5)

$$\begin{array}{r} 5x + 3y = -19 \\ (-1) 8x + 3y = -25 \end{array} \quad (-1)$$

$$\begin{array}{r} 5x + 3y = -19 \\ -8x - 3y = 25 \end{array}$$

$$\frac{-3x}{-3} = \frac{6}{-3}$$

$$x = -2$$

$$5(-2) + 3y = -19$$

$$\begin{array}{r} -10 + 3y = -19 \\ +10 \end{array}$$

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

Solution  
(-2, -3)

$$\begin{array}{r} 4(5x + 3y = 52) \rightarrow 20x + 12y = 208 \\ 3(9x - 4y = 56) \rightarrow 27x - 12y = 168 \end{array}$$

$$\frac{47x}{47} = \frac{376}{47}$$

$$x = 8$$

$$5(8) + 3y = 52$$

$$\begin{array}{r} 40 + 3y = 52 \\ -40 \end{array}$$

$$\frac{3y}{3} = \frac{12}{3}$$

$$y = 4$$

Solution  
(8, 4)