

Solve by graphing.

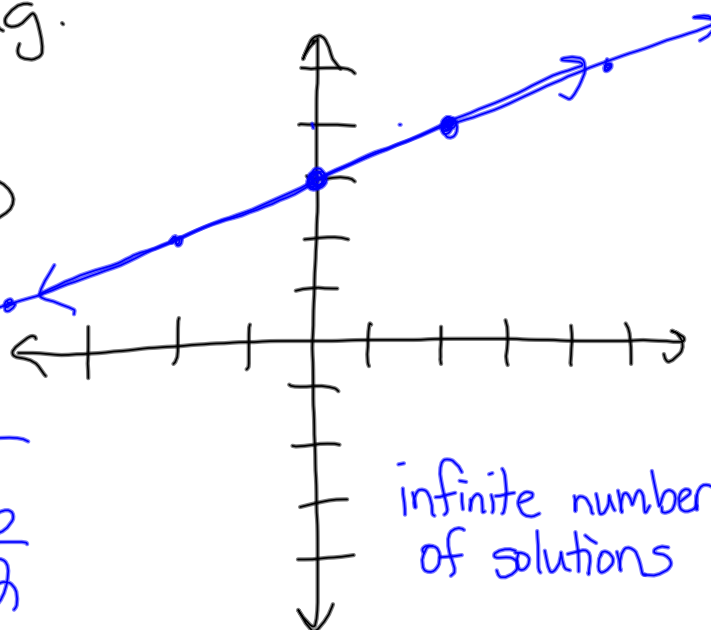
$$y = \frac{1}{2}x + 3$$

$$2y - x = 6$$

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$$\frac{2y}{2} = \frac{x+6}{2}$$

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



infinite number  
of solutions

$$x = -7y + 34$$

$$\begin{array}{r} +7y \quad +7y \\ \hline \end{array}$$

$$7y + x = 34$$

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

$$\frac{7y}{7} = \frac{-x + 34}{7}$$

$$y = -\frac{1}{7}x + \frac{34}{7}$$

$$x + 7y = 32$$

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

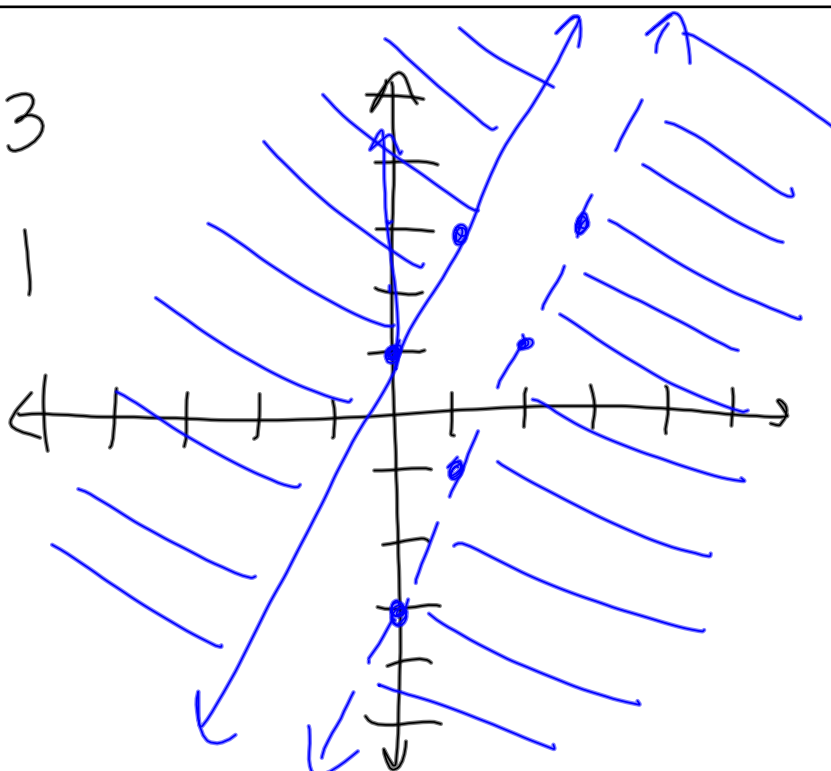
$$\frac{7y}{7} = \frac{-x + 32}{7}$$

$$y = -\frac{1}{7}x + \frac{32}{7}$$

$$y < 2x - 3$$

$$y \geq 2x + 1$$

no solution



Change to slope-intercept form.

$$\begin{array}{r} \text{a. } 4x + 5y = 3 \\ -4x \quad -4x \\ \hline 5y = -4x + 3 \\ \frac{5y}{5} = \frac{-4x}{5} + \frac{3}{5} \end{array}$$

$$y = -\frac{4}{5}x + \frac{3}{5}$$

$$\begin{array}{r} \text{b. } 3x - 2y = 8 \\ -3x \quad -3x \\ \hline -2y = -3x + 8 \\ \frac{-2y}{-2} = \frac{-3x}{-2} + \frac{8}{-2} \\ y = \frac{3}{2}x - 4 \end{array}$$

$$\begin{array}{r} \text{c. } 2x + 7y = -20 \\ -2x \quad -2x \\ \hline 7y = -2x - 20 \\ \frac{7y}{7} = \frac{-2x}{7} - \frac{20}{7} \end{array}$$

$$y = -\frac{2}{7}x - \frac{20}{7}$$

## Standard Form

Find  $x$ - and  $y$ -intercepts:

$$a. \quad 6x - 2y = 18$$

$\downarrow$  0 for  $y$        $\downarrow$  0 for  $x$

$$y = 0$$

$$x = 0$$

$$6x - 2(0) = 18$$

$$6(0) - 2y = 18$$

$$\frac{6x}{6} = \frac{18}{6}$$

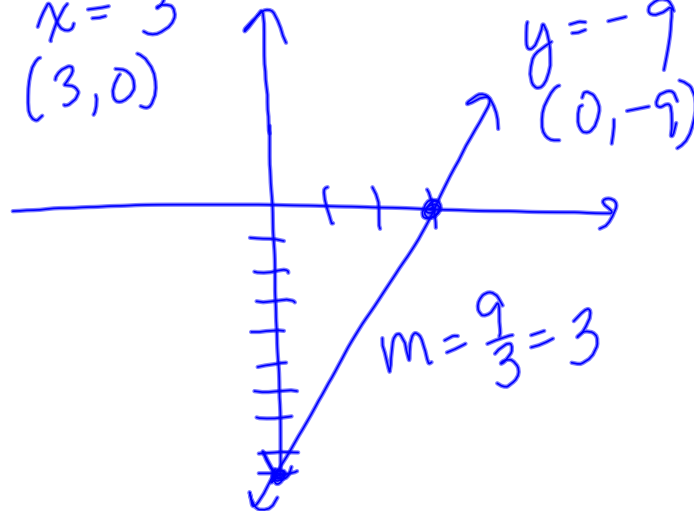
$$\frac{-2y}{-2} = \frac{18}{-2}$$

$$x = 3$$

$$y = -9$$

$$(3, 0)$$

$$(0, -9)$$



$$b. \quad -5x + 3y = 30$$

$$-5x + 3(0) = 30$$

$$\frac{-5x}{-5} = \frac{30}{-5}$$

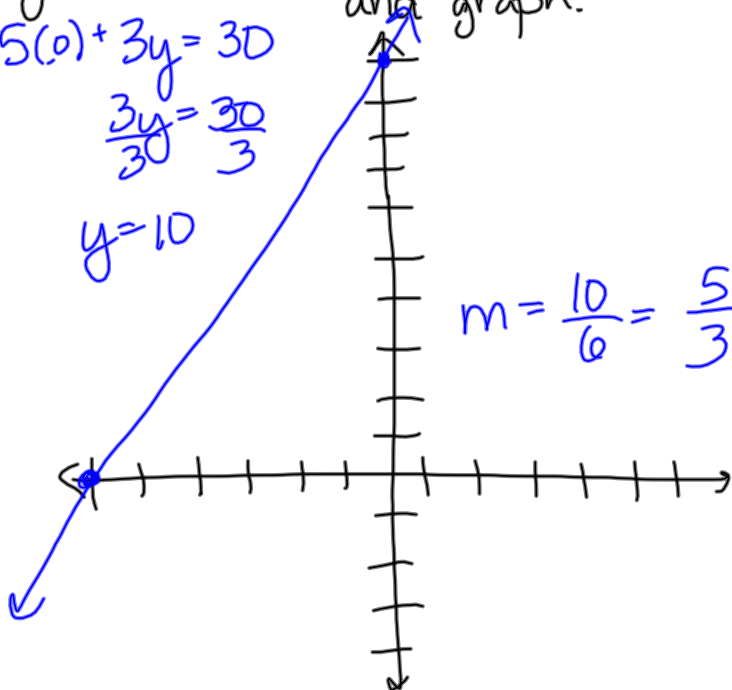
$$x = -6$$

$$-5(0) + 3y = 30$$

$$\frac{3y}{3} = \frac{30}{3}$$

$$y = 10$$

Find the  
x- and y- intercepts  
and graph.

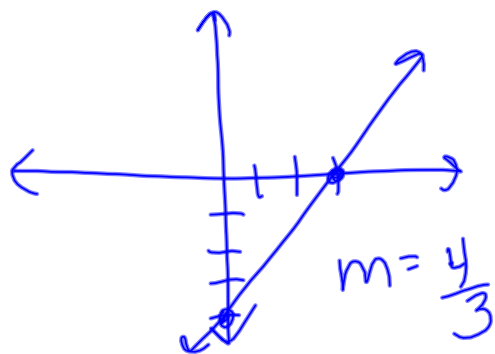


$$c. \quad -4x + 3y = -12$$

$$-4x + 3(0) = -12$$

$$\frac{-4x}{-4} = \frac{-12}{-4}$$

$$x = +3$$



x	y
0	0

$$-4(0) + 3y = -12$$

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

$$y = -4$$

Find the solution to the system by graphing.

$$-2x - y = -1$$

$$2x - y = -5$$

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

$$\begin{array}{r} -y \\ \hline -y \end{array} = \begin{array}{r} -2x - 5 \\ -1 \\ \hline -1 \end{array}$$

$$y = 2x + 5$$

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

$$\begin{array}{r} -y \\ \hline -1 \end{array} = \begin{array}{r} 2x - 1 \\ -1 \\ \hline -1 \end{array}$$

$$y = -2x + 1$$

