

Solving Systems by Graphing

Example 1: Solving Systems of Linear Equations

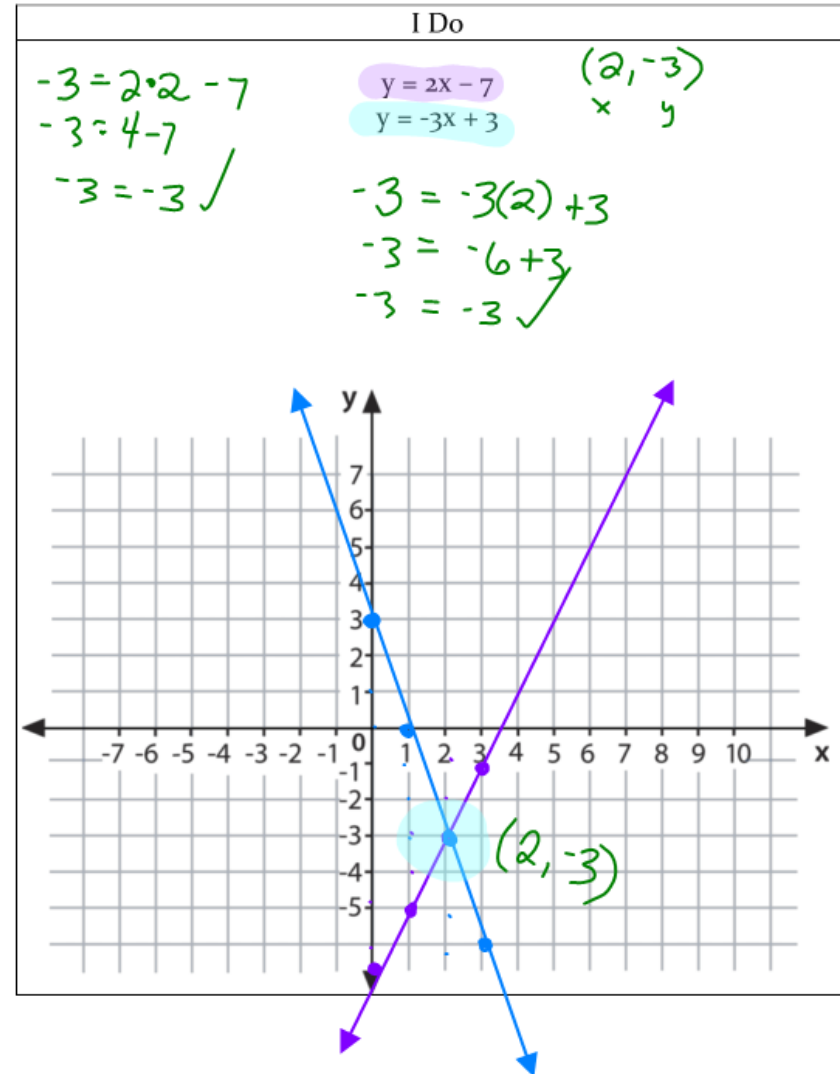
Solve the system of linear equations by graphing.

$$y = -3x + 3$$

\uparrow
 m

\uparrow
 b

$\frac{-3}{1}$ down
 1 right



$$y = 2x - 7$$

\uparrow
 m

\uparrow
 b

$\frac{2 \text{ rise}}{1 \text{ right}}$

We Do

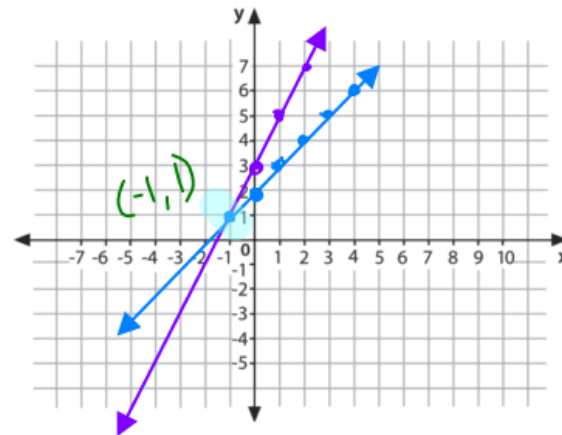
$$y = 2x + 3$$

$$y = x + 2$$

$$\begin{matrix} x & y \\ (-1, 1) \end{matrix}$$

$$\begin{aligned} 1 &= 2(-1) + 3 \\ 1 &= -2 + 3 \\ 1 &= 1 \checkmark \end{aligned}$$

$$\begin{aligned} 1 &= 1(-1) + 2 \\ 1 &= -1 + 2 \\ 1 &= 1 \checkmark \end{aligned}$$



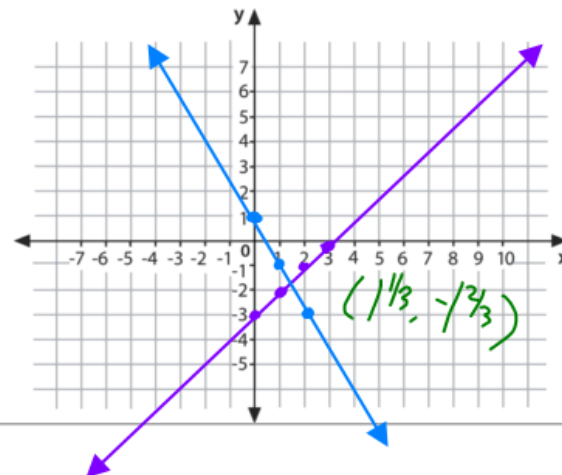
You Do

$$y = x - 3$$

$$y = -2x + 1$$

$$\begin{matrix} -2 & \text{down} \\ 1 & \text{right} \end{matrix}$$

$$\begin{aligned} x - 3 &= -2x + 1 \\ +2x & \\ 3x &= 4 \\ x &= \frac{4}{3} \end{aligned}$$



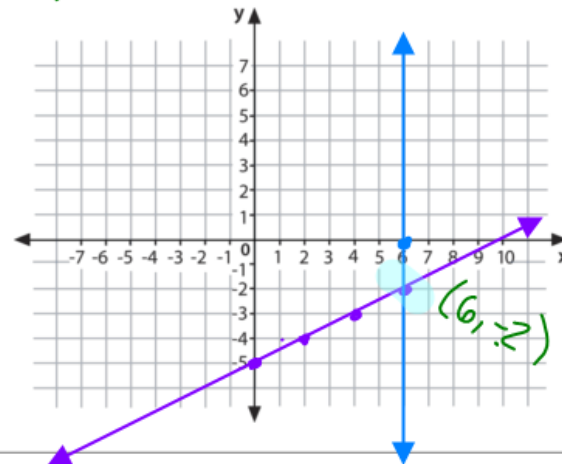
We Do

$$y = \frac{1}{2}x - 5$$

$$x = 6$$

$\frac{1}{2}$ rise
 $\frac{1}{2}$ right

$(6, -2)$

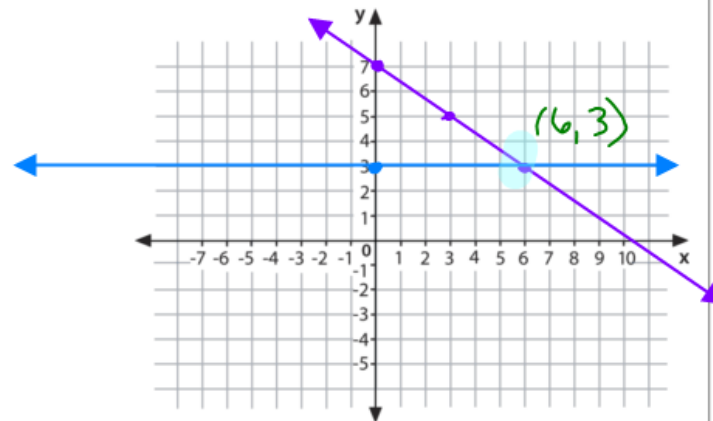


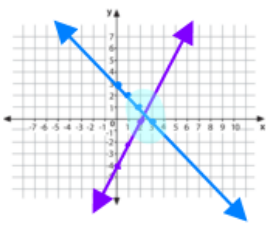
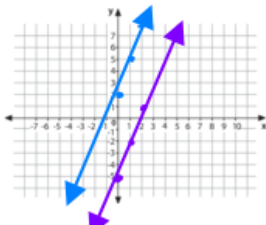
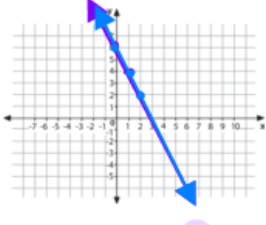
You Do

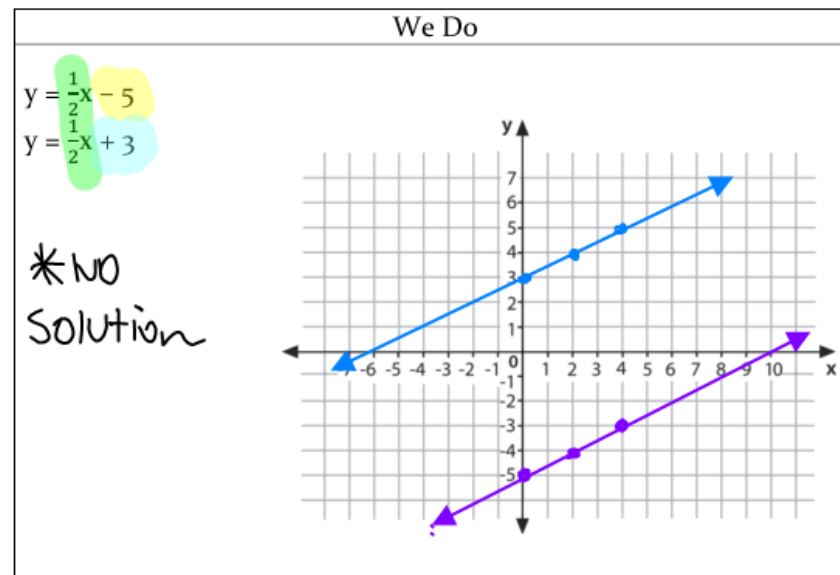
$$y = -\frac{2}{3}x + 7$$

$$y = 3$$

$(6, 3)$



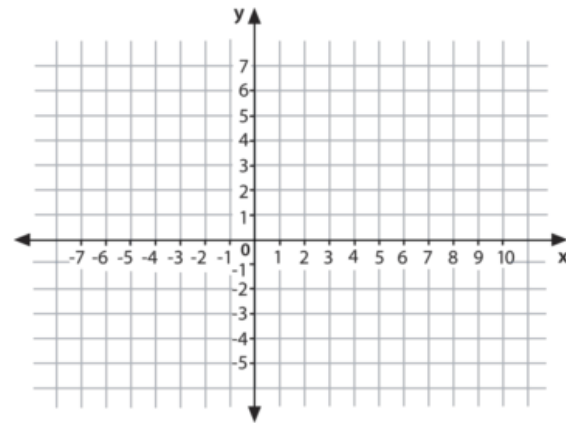
One-solution	No Solution	Infinitely Many Solutions
 $y = 2x - 4$ $y = -x + 3$	 $y = 3x - 5$ $y = 3x + 2$ <p>*same slope *different y-int.</p>	 $y = -2x + 6$ $y = -2x + 6$ <p>*same slope *same y-int.</p>



We Do

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

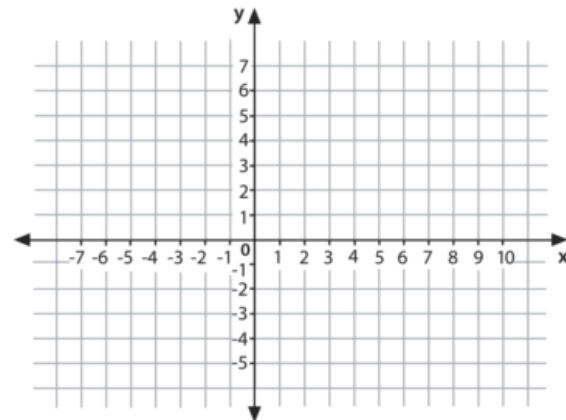
$$y = -2x + 3$$



You Do

$$y = -\frac{3}{4}x + 7$$

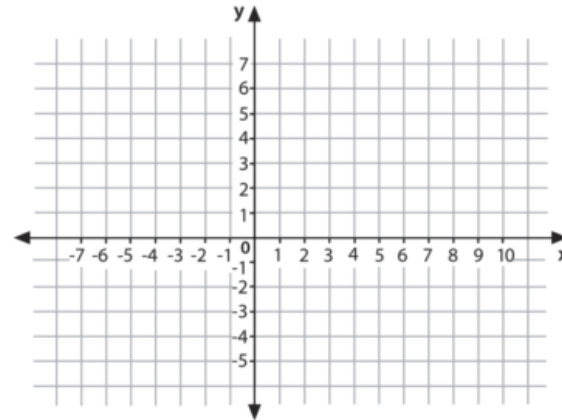
$$y = \frac{4}{3}x - 2$$



You Do

$$y = -3x + 6$$

$$y = x - 2$$



You Do

$$y = 4x - 6$$

$$y = 4x + 1$$

