

LESSON 2

This lesson will deal with the solving of systems linear equations by graphing.

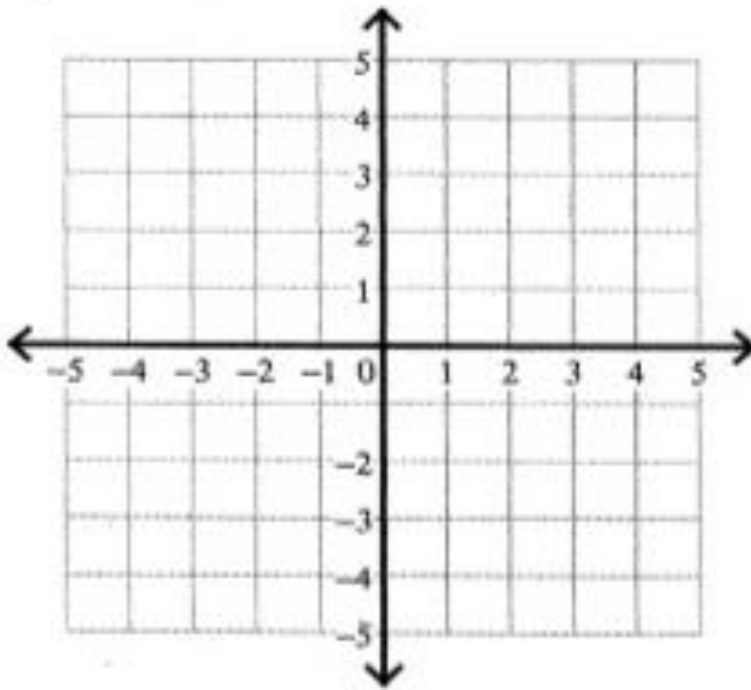
Note: To solve a system of linear equations by graphing, follow these steps.

1. Graph each of the equations in the system on the same coordinate axes.
2. Find the point at which the graphs intersect.
3. Plug the point back into each of the equations to verify that it makes all of the equations in the system true.

Example 1.

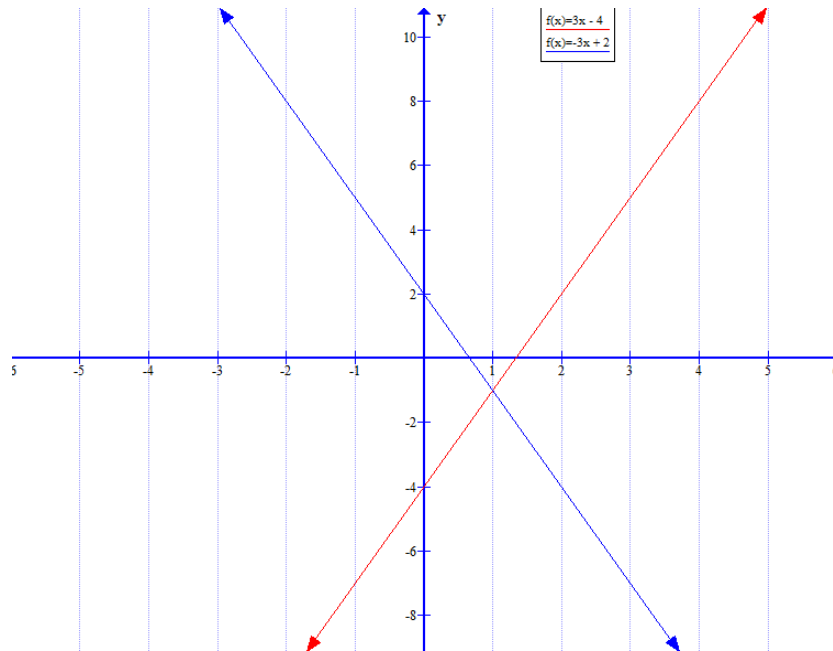
Solve by Graphing

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



Graph the first equation by plotting two points. When $x = 0$, $y = -4$ (0, -4), and when $x = 2$, $y = 2$ (2, 2). Doing the same for the second equation we have two points (0, 2) and (2, -4).

The graph is shown below.

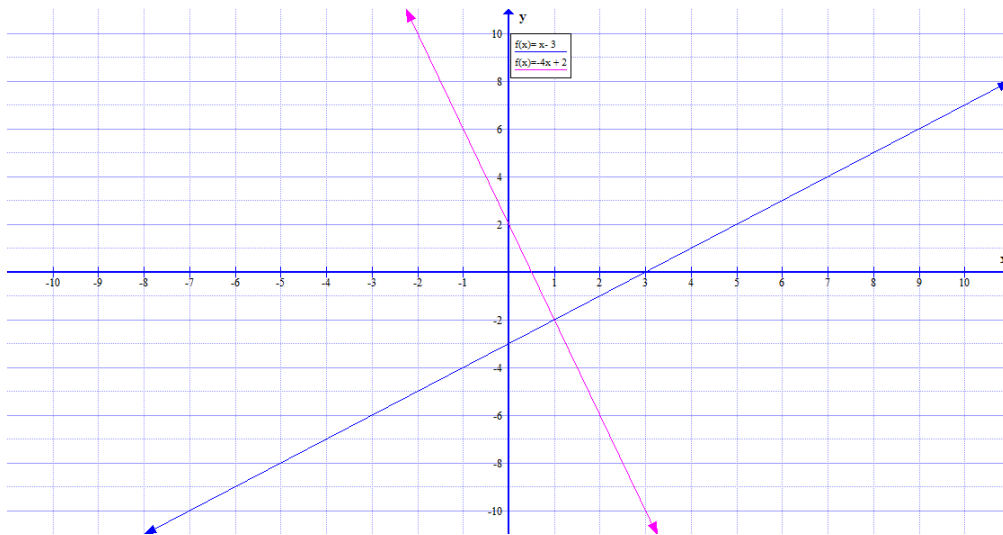


Example 2.

$$4x + y = 2 \Rightarrow y = -4x + 2$$

$$x - y = 3 \Rightarrow y = x - 3$$

In this case we must rearrange the equation in slope-intercept form, $y = mx + b$ as above, then proceed as in Example 1. The graph is shown below.

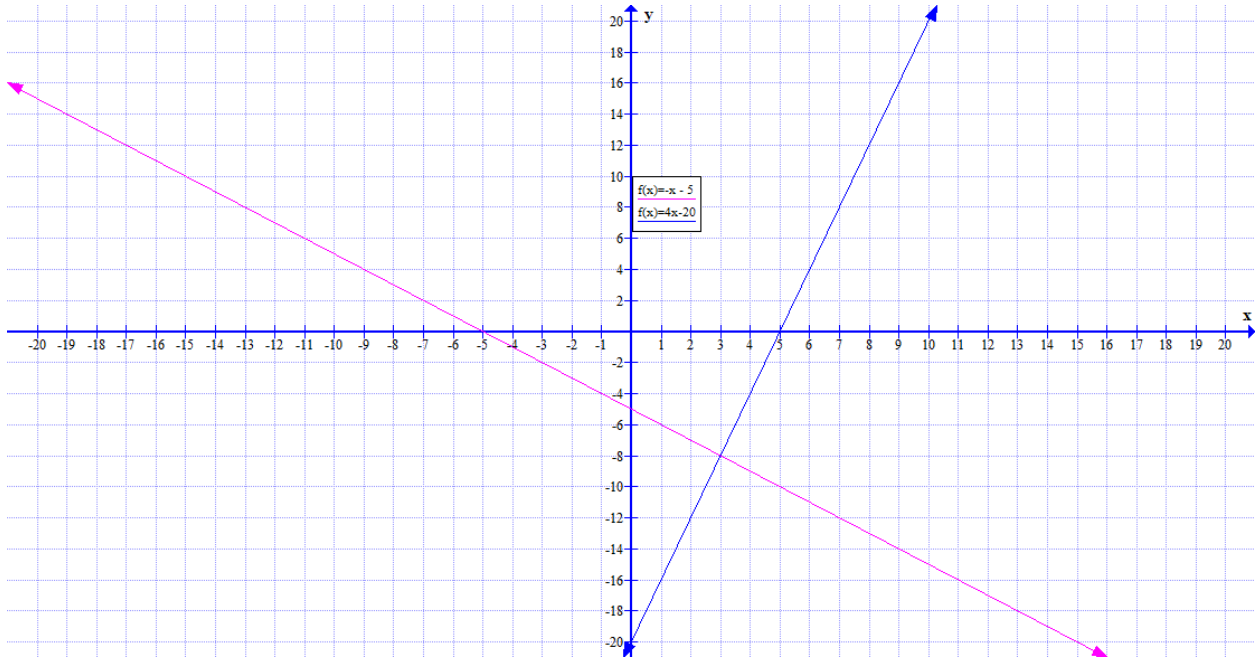


Example 3.

$$4x - y = 20 \Rightarrow y = 4x - 20$$

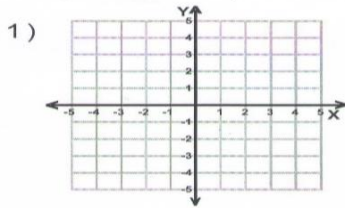
$$-2x - 2y = 10 \Rightarrow -x - 5$$

Again, in this case we must rearrange the equation in slope-intercept form, $y = mx + b$ as above, then proceed as in Example 1. The graph is shown below.

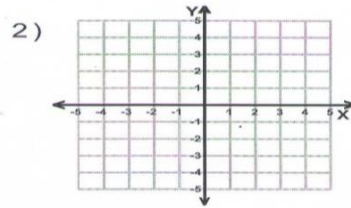


Lesson 2 Exercise

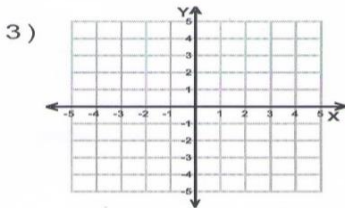
Solve each system by graphing.



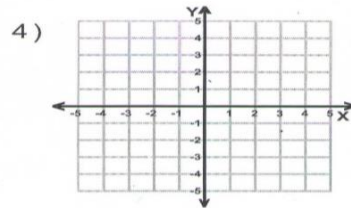
$$\begin{aligned} -x + 2y &= 6 \\ y &= 2 \end{aligned}$$



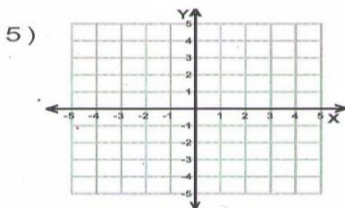
$$\begin{aligned} -3x + 2y &= 8 \\ 5x + 2y &= -8 \end{aligned}$$



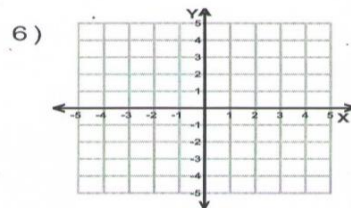
$$\begin{aligned} -3x + 2y &= 6 \\ y &= 3 \end{aligned}$$



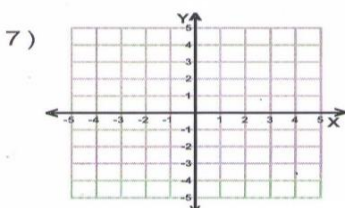
$$\begin{aligned} -7x + 3y &= 15 \\ y &= -2 \end{aligned}$$



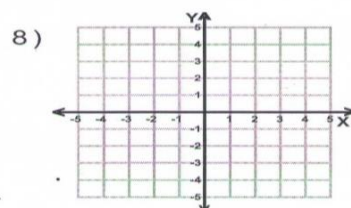
$$\begin{aligned} -5x + 4y &= -16 \\ x + 4y &= 8 \end{aligned}$$



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



$$\begin{aligned} -x + 3y &= 6 \\ 4x + 3y &= -9 \end{aligned}$$



$$\begin{aligned} 5x + 2y &= -4 \\ -x + 2y &= 8 \end{aligned}$$
