

Guided Notes: Solving Systems of Equations by Graphing

A **system of equations** is: _____

To solve a system of equations, _____

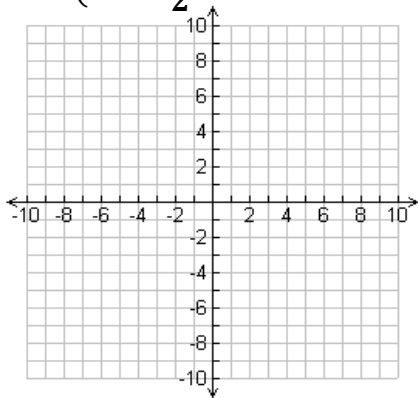
STRATEGY #1 OF SOLVING SYSTEMS:

Graph both equations and find the point of intersection!

ESSENTIAL IDEA: _____

Example 1:

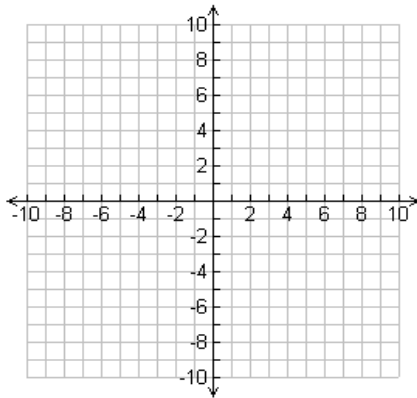
$$\begin{cases} y = -\frac{1}{3}x + 4 \\ y = \frac{3}{2}x - 7 \end{cases}$$



Solution: (,)

Example 2:

$$\begin{cases} y = 2x - 9 \\ y = -3x + 6 \end{cases}$$

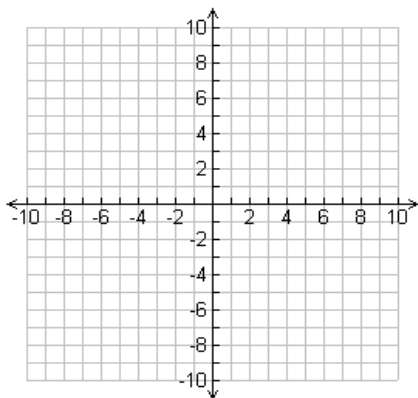


Solution: (,)

Check the solution to Example 2:

Example 3:

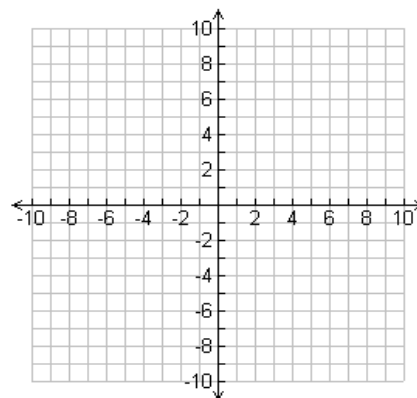
$$\begin{cases} y = -\frac{3}{4}x + 7 \\ y = \frac{1}{2}x - 3 \end{cases}$$



Solution: (,)

Example 4:

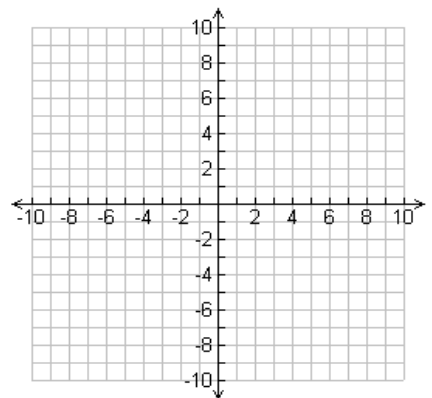
$$\begin{cases} y = x + 3 \\ y = -\frac{1}{3}x - 5 \end{cases}$$



Solution: (,)

Example 5:

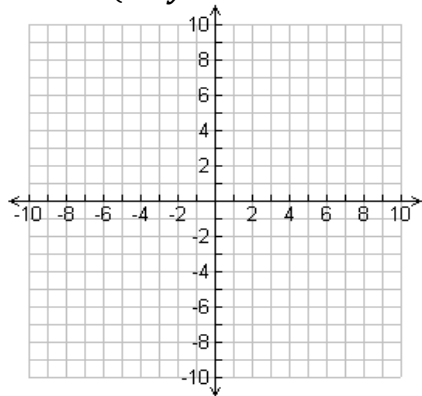
$$\begin{cases} y = -\frac{1}{4}x \\ y = -\frac{1}{4}x - 3 \end{cases}$$



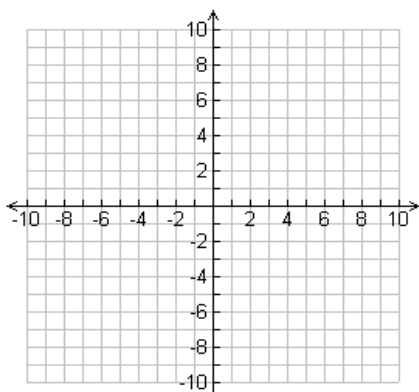
Solution: (,)

Example 6:

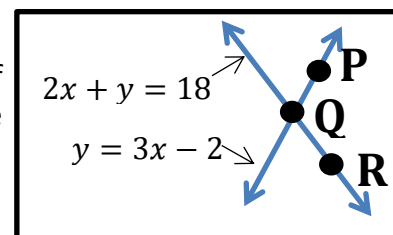
$$\begin{cases} y = -x + 9 \\ y = 2 \end{cases}$$

**Graph:**

$$x + y = 8$$



Example 7: The graphs of two equations are shown below, without the grid. Out of the four possible points below, determine the identities of points P, Q, and R. (Look at the ESSENTIAL IDEA again!)



$$(9, 0)$$

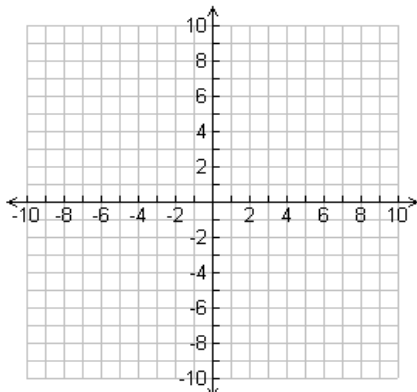
$$(8, 4)$$

$$(4, 10)$$

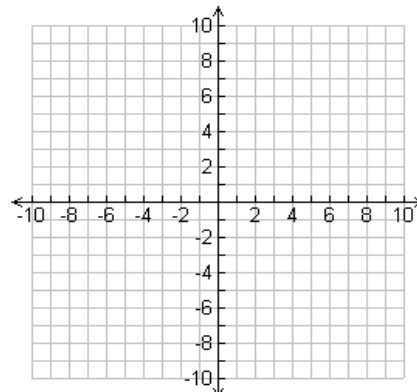
$$(6, 16)$$

Graph:

$$4x + 2y = 20$$

**Graph:**

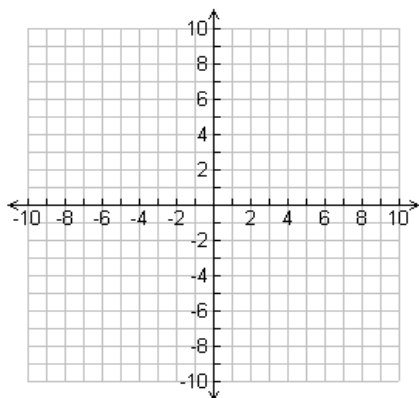
$$y + 4 = \frac{1}{2}x$$



To graph an equation that is NOT in slope-intercept form:

Example 8:

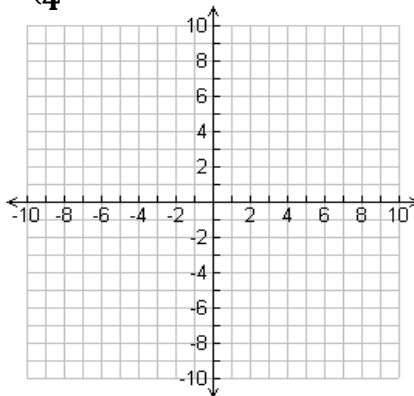
$$\begin{cases} x - y = 3 \\ 2x + 5y = 20 \end{cases}$$



Solution: (,)

Example 9:

$$\begin{cases} y - 3x = 8 \\ \frac{1}{4}x = y + 3 \end{cases}$$



Solution: (,)