

What do you know about Systems of Equations and Inequalities?

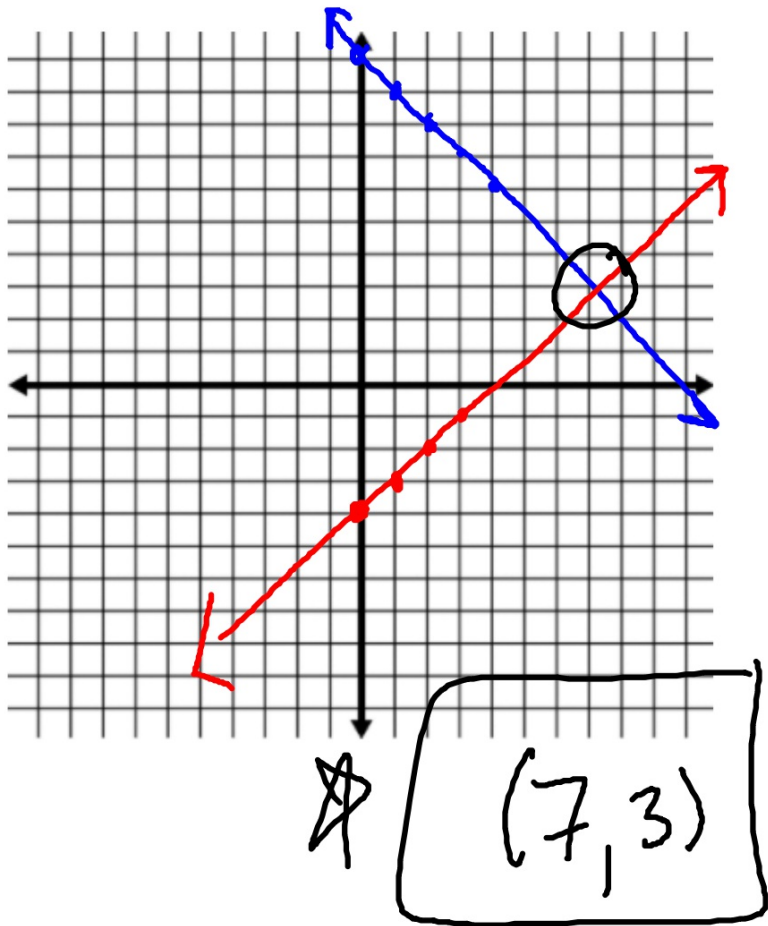
<p>1. What is a system of equations?</p>	<p>2. Three possible solutions for a system of equations are:</p>	<p>3. Three methods (ways) to solve a system of equations:</p>
<p>A set of two or more equations</p>	<p>① No Solution ② Infinitely many solutions (IMS) ③ Intersecting point(s)</p>	<p>1. Elimination 2. Substitution 3. Graphing</p>

4. Solve by Graphing:

$$\begin{cases} x + y = 10 \\ x - y = 4 \end{cases}$$

$$y = -x + 10$$

$$y = x - 4$$



5. Solve by Substitution:

$$\begin{aligned} 3x + y &= -9 \\ -3x - 2y &= 12 \end{aligned}$$

$$y = -9 - 3x$$

$$3(-2) + y = -9$$

$$-6 + y = -9$$

$$y = -3$$

$$-3x - 2(-9 - 3x) = 12$$

$$-3x + 18 + 6x = 12$$

$$18 + 3x = 12$$

$$3x = -6$$

$$x = -2$$

$$(-2, -3)$$

6. Solve by Elimination:

$$\begin{array}{l} 3(2x + 4y = -4) \\ -2(3x + 5y = -3) \end{array}$$

$$\begin{array}{r} \cancel{6x + 12y = -12} \\ + \cancel{-6x - 10y = 6} \\ \hline \end{array}$$

$$2y = -6$$

$$y = -3$$

$$2x + 4(-3) = -4$$

$$2x - 12 = -4$$

$$2x = 8$$

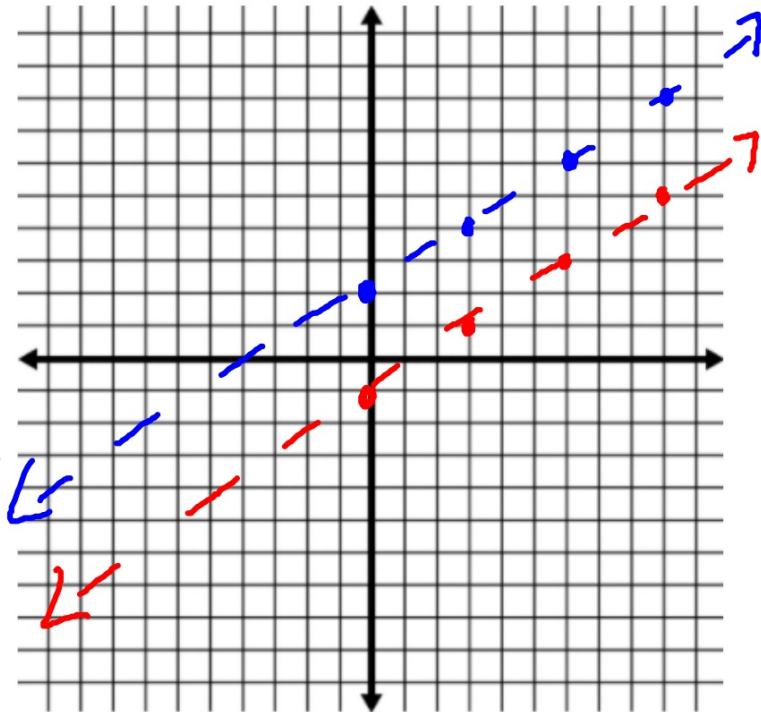
$$x = 4$$

$$\star (4, -3)$$

7. Solve by Graphing:

$$\begin{cases} y > \frac{2}{3}x + 2 \\ y < \frac{2}{3}x - 1 \end{cases}$$

No Solution



Application Problem Practice :

There are 25 bikes and trikes at the park. The bikes and trikes have 60 wheels in all. How many bikes and trikes are in the park?

$$b = \text{bikes}$$

$$t = \text{trikes}$$

$$b + t = 25$$

$$2b + 3t = 60$$

$$10 = t \quad 15 = b$$

$$\begin{aligned} -4x + y &= 3 \\ 8x &= 2y - 6 \end{aligned}$$

$$\begin{aligned} x + 2y &= 11 \\ x + 2y &= 2 \end{aligned}$$

From worksheet

#16

#21 & 23 on graphing calculator

If we were to graph these linear equations, what would they look like? Would they intersect?