EMA
Solving Systems of Equations by Graphing

_____key_____ is a system grapher.

Date: _____ Period: _____

What is a System of Equations?

_____ A SET OF TWO OR MORE EQUATIONS WITH THE SAME VARIABLE. _____

_____

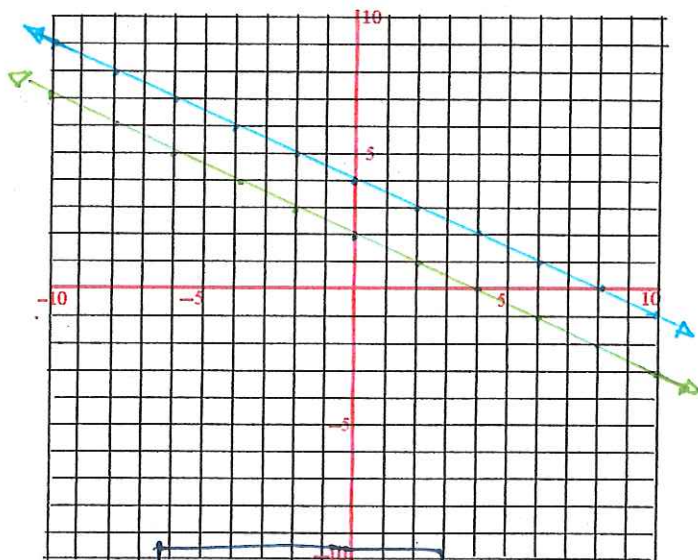**What is a Solution to a System of Equations?**

_____ A SET OF VALUES FOR THE VARIABLES THAT SATISFY ALL THE EQUATIONS SIMULTANEOUSLY. _____

_____

What does a Solution do for a System of Equations?

DEFINES THE POSSIBLE TYPES OF SOLUTIONS : NO SOLUTION (LINES DO NOT INTERSECT),
ONE SOLUTION (POINT WHERE LINES INTERSECT), OR INFINITELY MANY SOLUTIONS (SAME LINE).

Solve.

1.)
$$3x + 6y - 12 = 0 \rightarrow y = -\tfrac{1}{2}x + 2$$
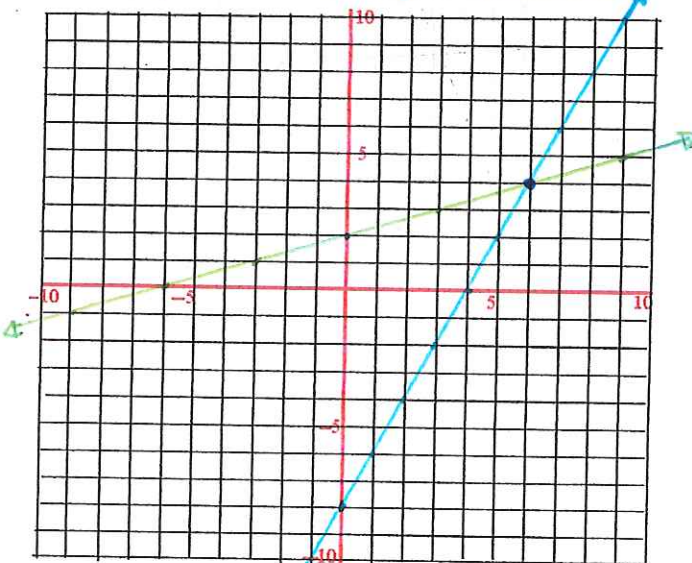$$x + 2y = 8 \rightarrow y = -\tfrac{1}{2}x + 4$$

NO SOLUTION

2.)
$$3 = 4y + x \rightarrow y = -\tfrac{1}{4}x + \tfrac{3}{4}$$
$$8y = -2x + 6 \rightarrow y = -\tfrac{1}{4}x + \tfrac{3}{4}$$

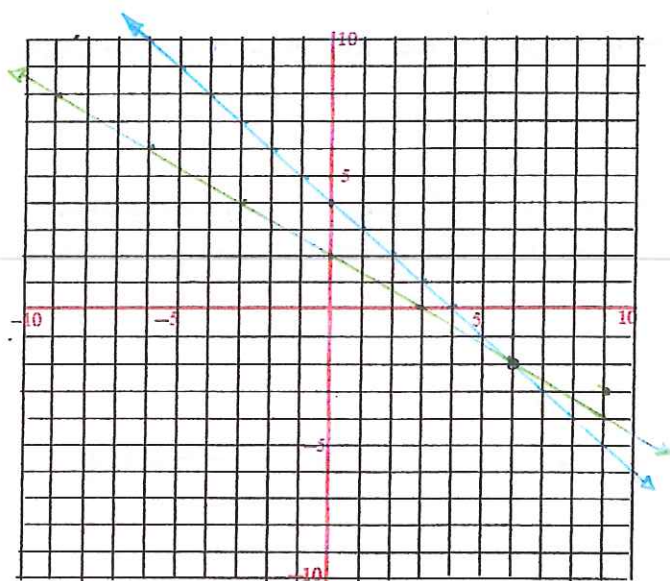INFINITELY MANY SOLUTIONS

3.)
$$-x + 3y = 6 \rightarrow y = \tfrac{1}{3}x + 2$$
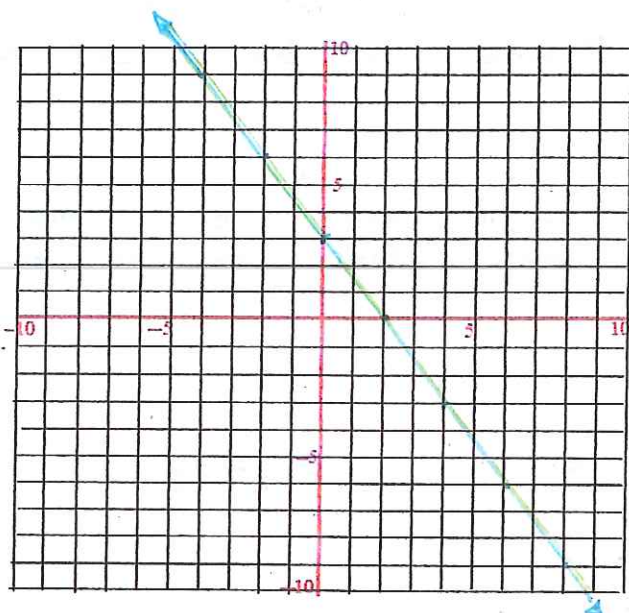$$2x - y = 8 \rightarrow y = 2x + 8$$

1 SOLUTION
(6, 4)

Graph each system of equations. Then determine the solution of the system.

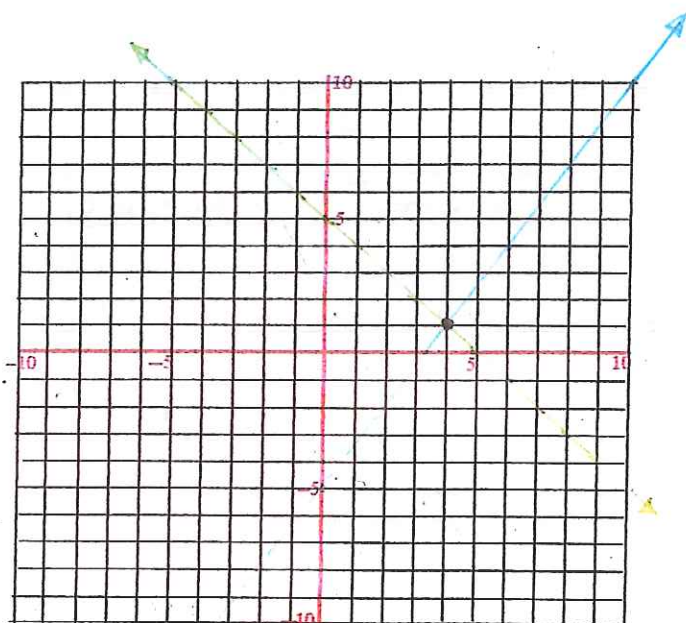4. $2x + 3y = 9$ → $y = -\frac{2}{3}x + 3$

$x + y = 4$ → $y = -x + 4$

Solution: $(6, -2)$

5. $2y + 3x = 6$ → $y = -\frac{3}{2}x + 3$

$4y + 6x = 12$ → $y = -\frac{3}{2}x + 3$

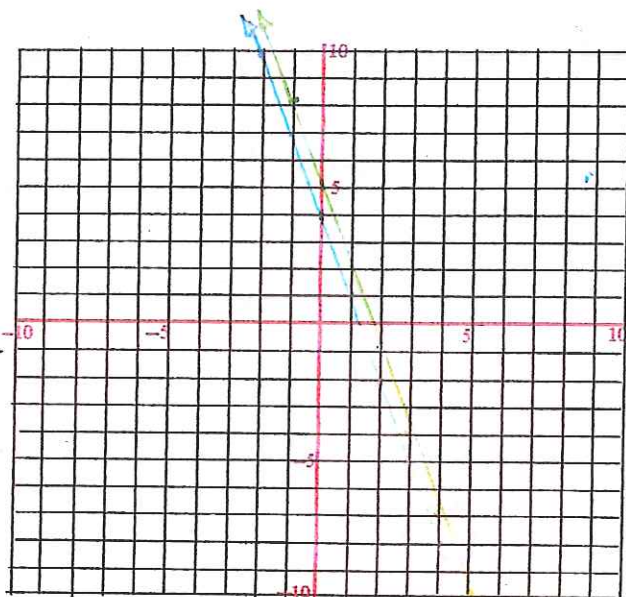

Solution: INFINITELY MANY SOLUTIONS

6. $x + y = 5$ → $y = -x + 5$

$3x - 2y = 10$

Solution: $(4, 1)$

7. $y = -3x + 5$

$9x + 3y = 12$ → $y = -3x + 4$

Solution: NO SOLUTION