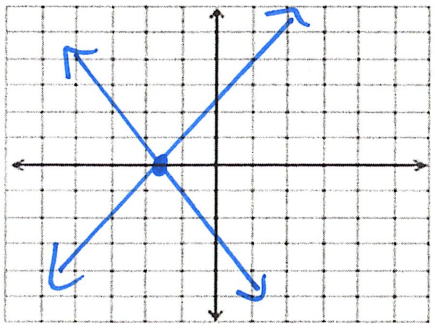
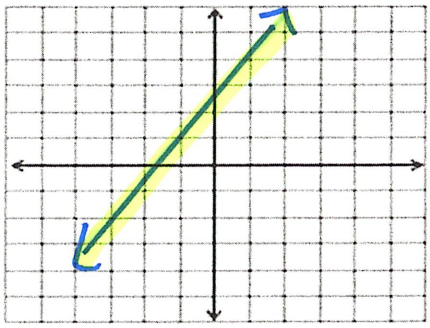
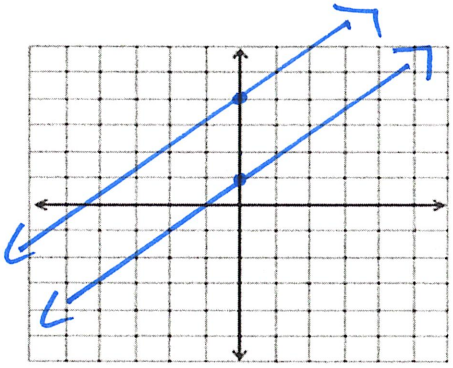
Graphing Equations: Day 1 Notes Name: _____

Objective: I can solve systems of equations by graphing.

Word	Defintion	Example
System of Linear Equations	Two or more linear equations considered at the same time.	$y = 3x + 2$ $y = \frac{2}{3}x - 5$
Solution of the System	Any ordered pair, (x, y), that makes all of the equations in a system true.	$y = 3x + 1$ $y = 2x + 2$ Solution $(1, 4)$

One solution	Infinitely Many Solutions	No Solution
		
one intersection	same line	parallel lines
different slopes	same slopes	same slopes
(x, y)	same y-intercept	different y-int.

Solve by graphing and identify the solution (ordered pair):

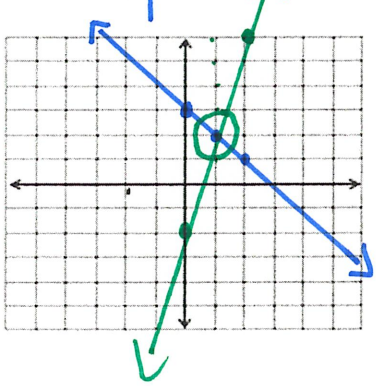
Ex 1) $y = -x + 3$

$2y = 4x - 2$

$m = \frac{4}{1}$

$b = -2$

$m = \frac{-1}{1}$ $b = 3$



Solution: $(1, 2)$

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

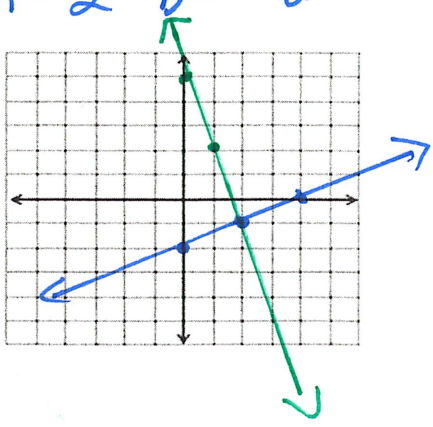
$y = -3x + 5$

$m = \frac{-3}{1}$

$b = 5$

Solution: $(2, -1)$

$m = \frac{1}{2}$ $b = -2$



Graphing Equations: Day 2 Notes Name: _____

Objective: I can solve systems of equations by graphing.

Solve by graphing and identify the solution.

a) $y = \frac{3}{4}x - 5$ $m = \frac{3}{4}$ $b = -5$

$3x - 4y = 20$

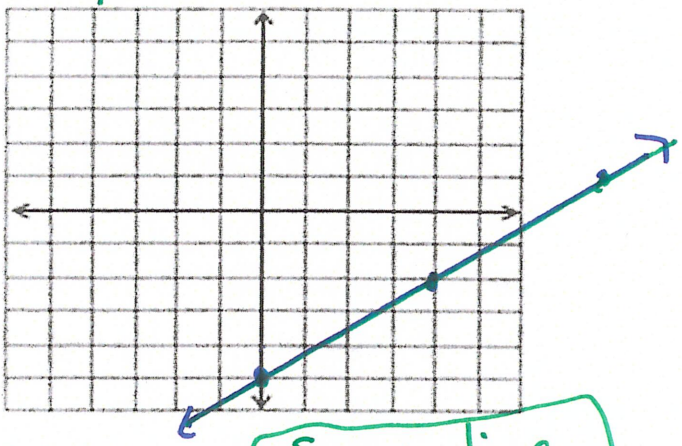
$-3x \quad -3x$

$\frac{-4y}{-4} = \frac{-3x}{-4} + \frac{20}{-4}$

$m = \frac{3}{4}$

$b = -5$

$* \; y = \frac{3}{4}x - 5$



Solution: (____ , ____)

Same line, infinitely many solutions

b) $3x + y = 3$ $y = -3x + 3$

$-3x \quad -3x$

$3x = -4 - y$

$+y \quad +y$

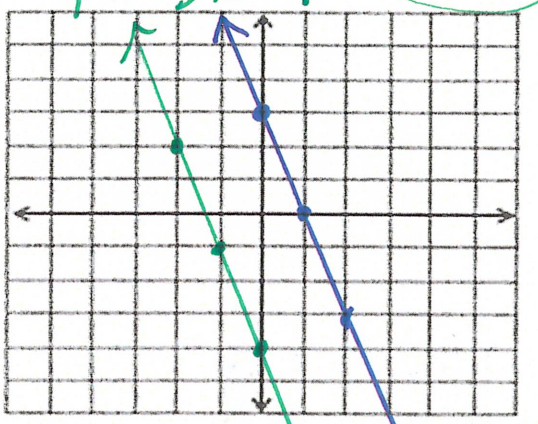
$y + 3x = -4$

$-3x \quad -3x$

$y = -3x - 4$

$m = \frac{-3}{1}$ $b = 3$

$m = -3$ $b = -4$



Solution: (____ , ____)

parallel, No solution

c) $y = 2x - 1$

$y - 4x = -6$

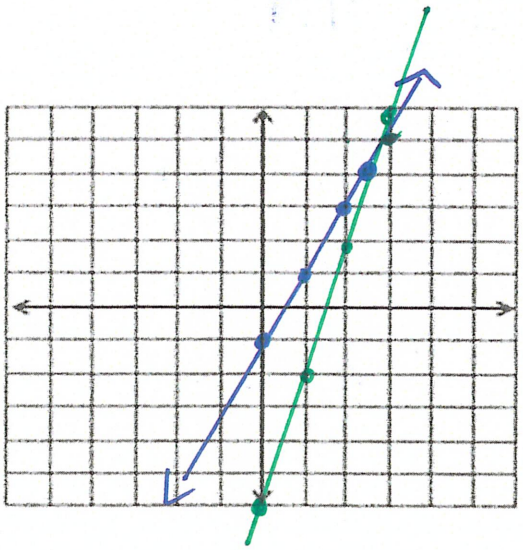
$+4x \quad +4x$

$y = 4x - 6$

$m = 2$ $b = -1$

$m = \frac{4}{1}$

$b = -6$



Solution: (2.5 , 4)

(3 , 5)

Can there be more than one point of intersection between the graphs of two linear equations? Why or why not?

yes, when we have the same line (infinitely many)

otherwise, no

usually one point of intersection

If the graphs of two lines in a system do not intersect at any point, what can you conclude about the solution of the system? Why? Explain.

Parallel lines, same slope

different y-int

Write a system of two equations and then graph to solve.

The sum of the distances two hikers walked is 24 mi, and the difference is 12 mi. What are the distances?

Hiker 1 = x

Hiker 2 = y

Equation 1: $x + y = 24$

$-x \quad -x$

$y = -x + 24$

$m = \frac{-1}{1}$

$b = 24$

Equation 2: $x - y = 12$

$-x \quad -x$

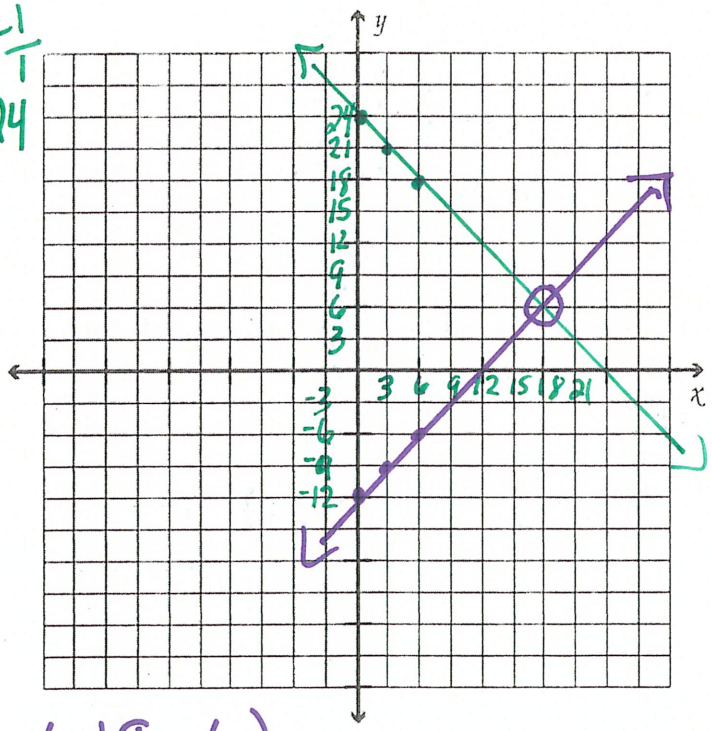
$-y = -x + 12$

$\frac{-y}{-1} = \frac{-x}{-1} + \frac{12}{-1}$

$y = x - 12$

$m = \frac{1}{1}$

$b = -12$



(18, 6)

x y

Hiker 1 = 18 miles Hiker 2 = 6 miles