Name: _____   Date: _____
Algebra: Module 1 – Lesson 20 (Solution Sets to Equations with Two Variables)

Do Now: Circle all the ordered pairs (x, y) that are solutions to the equation: 4x – y = 10
(3, 2)   (2, 3)   (-1 -14)   (0, 0)   (1, -6)   (5, 10)   (0, -10)

$-4-(-14)$ $4-(-6)$ $0-(-10)$

How did you decide whether or not an ordered pair was a solution to the equation? *to see if it makes a true statement*

plugged in our ordered pair

Important Vocabulary:

Ordered Pair – A ____Solution____ to a two variable equation when each number

____plugged____ into its corresponding variable makes the equation __true__. An

ordered pair is written in the form (__X__, __Y__).

Exercise 2

a. Discover as many additional solutions to the equation $4x - y = 10$ as possible. Consider the best way to organize all the solutions you have found.
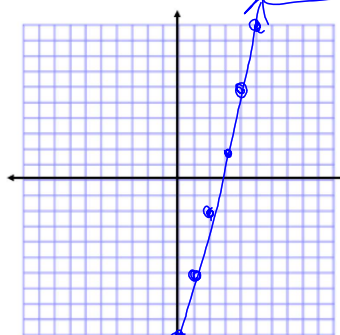
X	Y
6	14
10	30

$4(10) - \boxed{} = 10$

$40 - \boxed{30}$

X	Y
8	22
3	2
7	18

b. How many ordered pairs (x, y) will be in the solution set of the equation $4x - y = 10$?

Infinite #

c. Create a visual representation of the solution set by plotting each solution as a point (x, y) in the coordinate plane.

$4x - y = 10$

$-4x \qquad -4x$

_____

$-y = -4x + 10$

$y = 4x - 10$

Exercise 3

The sum of two numbers is 25. What are the numbers?

$(22, 3)$ $(23, 2)$
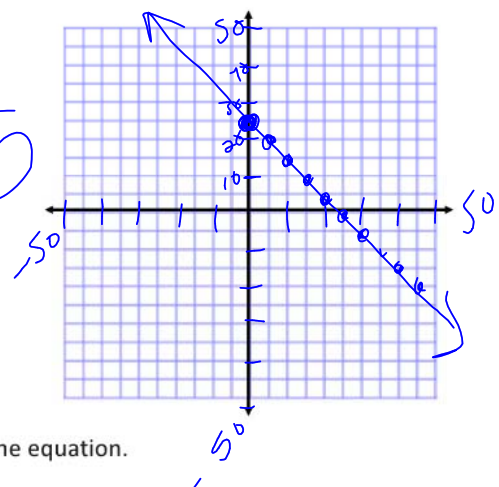
**How many answers are possible?

Infinite

$(9, 16)$ $(-25, 50)$

a. Create an equation using two variables to represent this situation. Be sure to explain the meaning of each variable.

$X = 1st \#$

$Y = 2nd \#$

$X + Y = 25$

$(12.5, 12.5)$

b. List at least 6 solutions to the equation you created in part (a).

$Y = -X + 25$

$b = 25$

$m = -1$

c. Create a graph that represents the solution set to the equation.

Closure:

Is the graph of the line $y = 2x - 3$ the same as the solution set to the equation $y = 2x - 3$? Explain your reasoning.

Yes, the graph shows all possible solutions

Why is it useful to represent the solutions to a two-variable equation using a graph?

Easier to see all solutions