BUTCHER- TECHNICAL MATH B – 1st PERIOD – OFF-SITE LEARNING PACKET DAY 6

Instructor Nancy Butcher **Date** Day 6

Program/Class Tech Math B **Period** 1, 2, 3

State Indicator/Competency:

- Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.
- Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

Instructional Objective(s):

- Students will be able to graph linear equations on the coordinate plane by solving for x and y and making an xy table with 80% accuracy.

Materials: Note packet, writing utensil, calculator

Method of Instruction: Independent

Activities:

16-2 Graphing a Linear Equation using a table

The graph of a straight line (__*linear*__) equation has an infinite number of ordered pairs of numbers that satisfy the equation.

Procedure for Graphing an Equation using a table

1. *Write the equation in terms of y.*

2. *Make a table of values. Head one column x and the other column y.*

3. *Select at least 3 convenient values for x and find their corresponding values for y by substituting into the equation. Pick a positive number, a negative number, and 0*

4. *Draw and label the x-axis and y-axis on the graph.*

5. *Plot the points.*

6. *Connect the points carefully to make a straight line.*

Example:

1. Graph $3x + 2y = 5$

Step 1: Write the equation in terms of y

$2y = 5 - 3x$ $\qquad$ $y = \frac{5-3x}{2}$

Step 2 & 3: Make a table. I'm choosing -2, 0, and 2 to be my values for x. Substitute each one into the equation to solve for y.

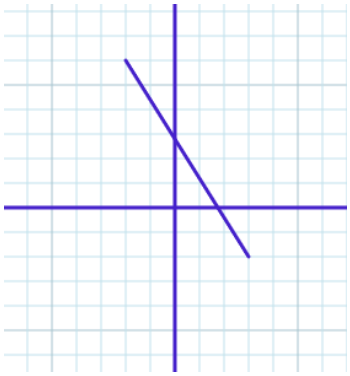
$$y = \frac{5-3(-2)}{2} = 5.5$$

$$y = \frac{5-3(0)}{2} = 2.5$$

$$y = \frac{5-3(2)}{2} = -0.5$$

x	y
-2	5.5
0	2.5
2	-0.5

Steps 4,5 & 6: Plot the points on the graph and draw a line. (-2,5.5), (0,2.5), (2,-0.5)



2. Graph $4x - 5y = 6$

Step 1: Write the equation in terms of y

-5y = 6 – 4x $\qquad y = \frac{6-4x}{-5}$

Step 2 & 3: Make a table. I'm choosing -2, 0, and 2 to be my values for x. Substitute each one into the equation to solve for y.

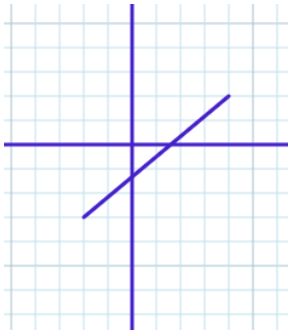
$$y = \frac{6 - 4(-2)}{-5} = -2.8$$

$$y = \frac{6 - 4(0)}{-5} = -1.2$$

$$y = \frac{6 - 4(2)}{-5} = 0.4$$

x	y
-2	-2.8
0	-1.2
2	0.4

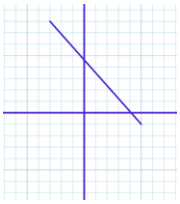
Steps 4,5 & 6: Plot the points on the graph and draw a line. (-2,-2.8), (0,-1.2), (2,0.4)



<u>Practice and check your answers:</u>

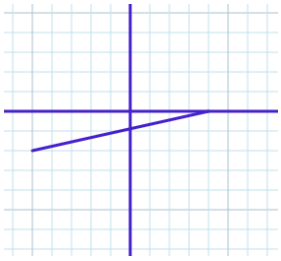
Graph the following linear equations.

1) $2x + 3y = 12$ Final Graph



2) $2x - 7y = 5$

Final Graph



Try this video for extra help: https://www.youtube.com/watch?v=RJHucyW6IP4

Assignment:

Complete attached Worksheet 16.2 (10 points)

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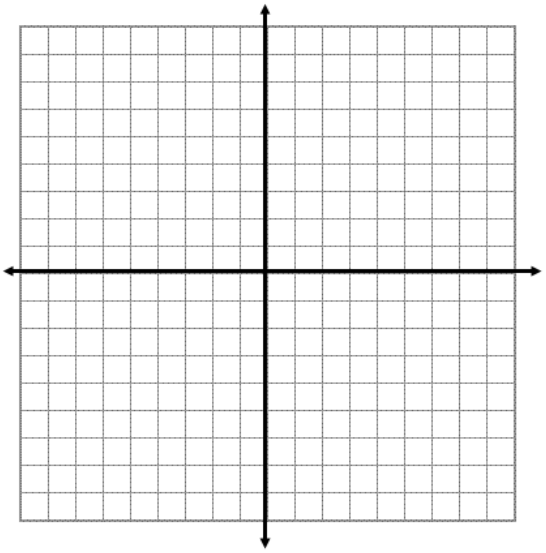
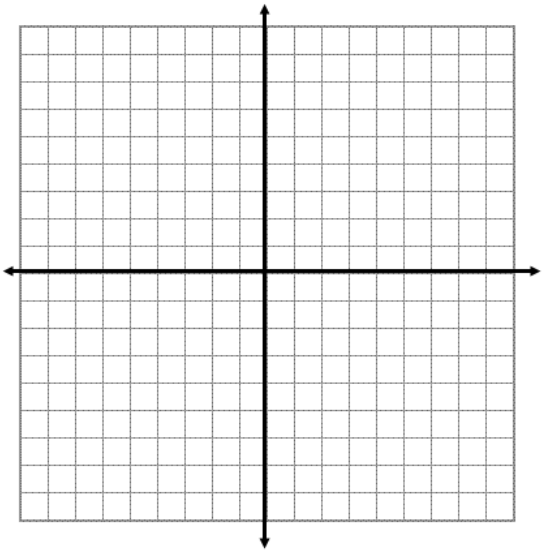
Section 16.2a Name_____

For each equation make an x/y table and graph the following linear equations. You must show your completed table to get credit.

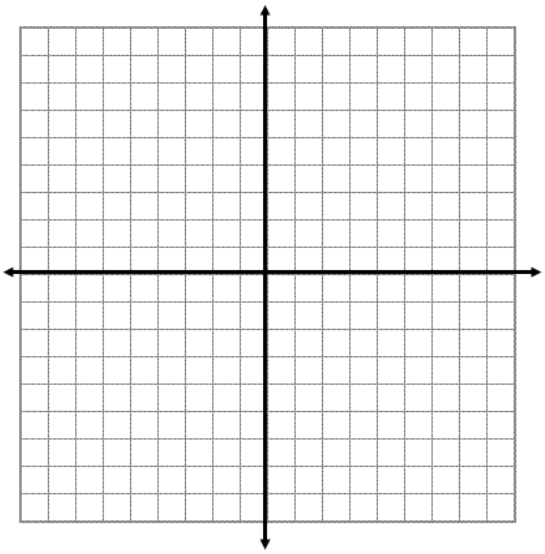
1. $x + y = 4$



2. $y = x + 1$



3. $3x + 4y = 12$



4. $4x – y = -4$