

Essential Question: How do we graph linear functions?**Do Now:**

- 1) Recall that a **function** is an input-output relationship that has exactly one output for each input.
- 2) Consider the following function rule: *The output is equal to four more than two times the input.*
- 3) Using the variable **y** to represent the output values and using the variable **x** to represent the input values, write the function rule algebraically.

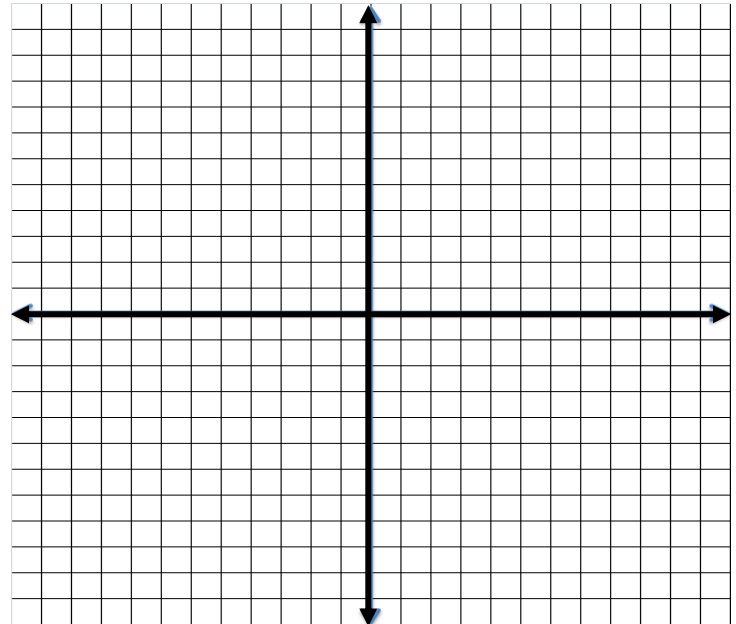
Function Rule: _____



Think about this...

Is it possible to create a graph that represents this rule?

x		y	(x, y)



Domain of the Function: _____

Range of the Function: _____

Linear Functions

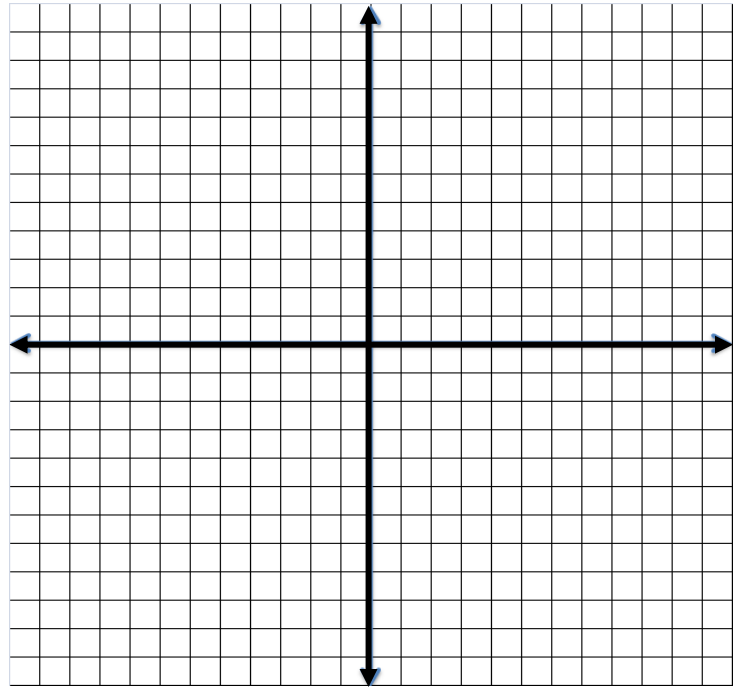
- A **linear function** is a function whose graph is a _____.
- Linear functions can be graphed by setting up a table of inputs and outputs (*table of values*)
- How do we create a table of **x** and **y** values?
 - If the coefficient of x is an integer, use x values $-2, -1, 0, 1, 2$
 - If the coefficient of x is a fraction, use multiples of the denominator for your x values
- How do we graph the line?
 - Plot the points in the table, connect them and draw an extended line
 - Label the line with the equation

Reminder: The table of values only shows *some* of the input and output values. The graph displays all of the input and output values.

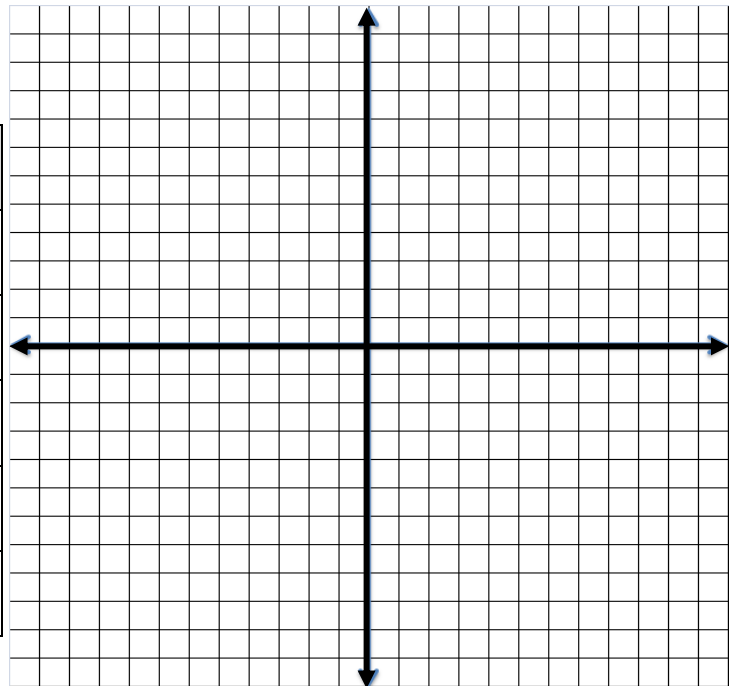
Let's try some more examples....

1. Draw the graph of $y = -x - 4$

x		y	(x, y)



2. Draw the graph of $y = -\frac{1}{2}x + 1$



Think about this...

- a) Is the ordered pair (585, -291.5) part of the graph of $y = -\frac{1}{2}x + 1$?
- b) Is the ordered pair (426, -214) part of the graph of $y = -\frac{1}{2}x + 1$?

The TAKEAWAY

A _____ function is a function whose graph is a picture of a straight line.
All the ordered pairs on the line represent all the input and output values of the function.

In order to graph a linear function, create a _____.

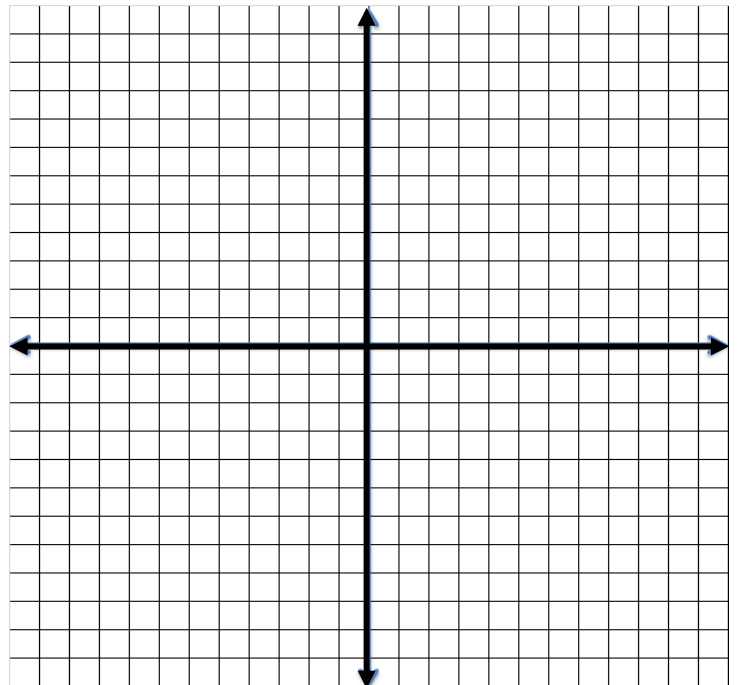
In general, when choosing the x -values for the table, use -2, -1, 0, 1, 2 when the coefficient of x is an _____ and use _____ of the denominator when the coefficient of x is a fraction.

8 Algebra CC

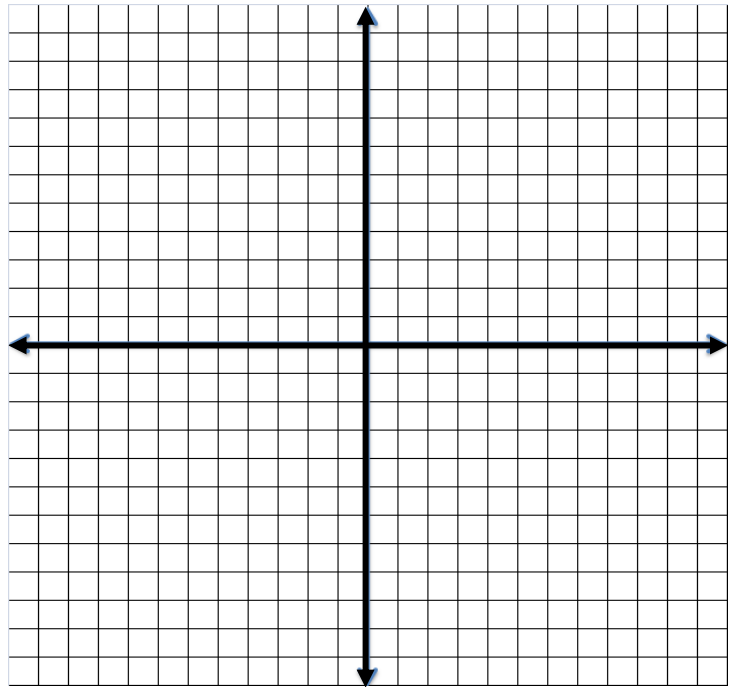
HW # _____

Set up a table of values and draw the graph of each function. State the **domain** and **range** in interval notation.

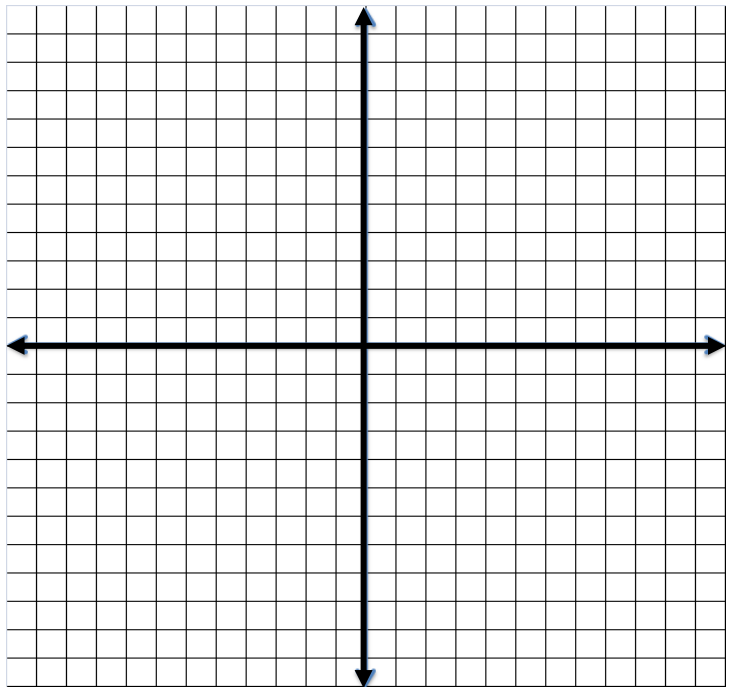
1) $y = -2x + 3$



$$2) y = \frac{1}{4}x - 5$$



$$3) y = 3x$$



Determine if the point $(-25.25, -75.75)$ is part of the graph of the function $y = 3x$. Justify your response.