Essential Question: How are linear functions graphed?

Do Now:

Recall that a function is an input-output relationship that has exactly one output for each input. Consider the following function rule:

The output is equal to one more than two times the input.

Using the variable y to represent the output values and using the variable x to represent the input values, write the function rule algebraically.
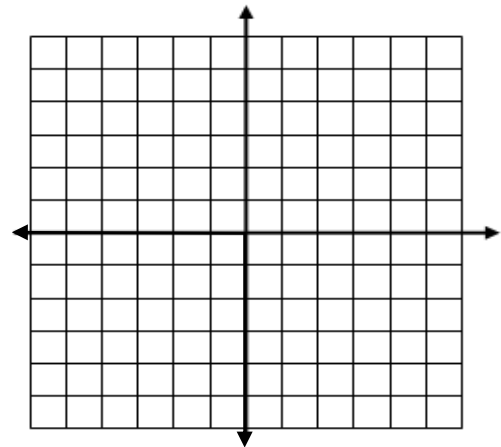
Function Rule:_____

_____

Graphing 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, known as a *table of values*.

How do we represent all the solutions to $y = 2x + 1$?

Domain: _____

Range: _____

Choose one solution from the graph and justify why it is a solution.	Is (-25, -49) a solution to this equation?	Justify why this graph and table shows a function.

Graphing Linear Equations using the <u>Table of Values Method</u>

- If necessary, rewrite the equation in $y = mx + b$ form (*solve for y*).

ex. $6x + 3y = 9$
$3y = -6x + 9$
$y = -2x + 3$

- 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.

- Plot the points in the table and draw an extended line.

- Label the line with the original equation.

1) Graph the solutions to $y = -\frac{1}{2}x + 1$

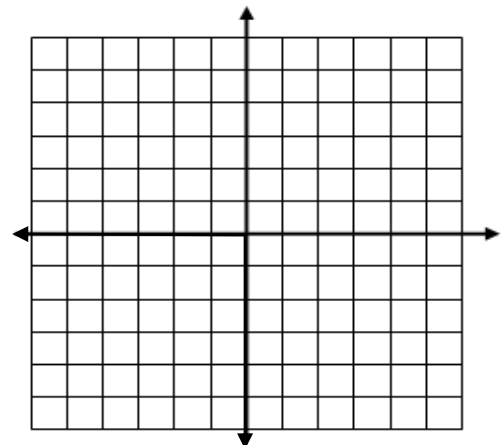|			
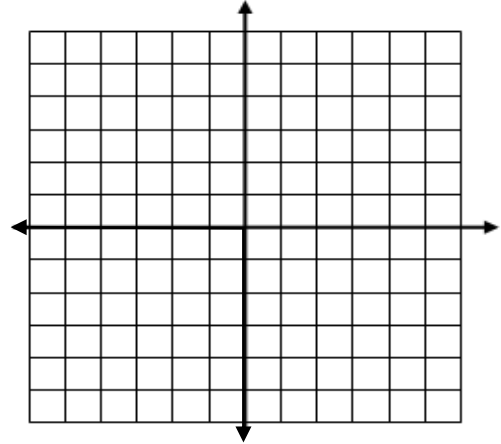
Is the ordered pair (585, -291.5) part of the graph of $y = -\frac{1}{2}x + 1$?	Is the order pair (426, -214) part of the graph of $y = -\frac{1}{2}x + 1$?

The **standard form** of a linear function is $Ax + By = C$, where A, B and C are real numbers. How do we rewrite these functions in $y = mx + b$ form?
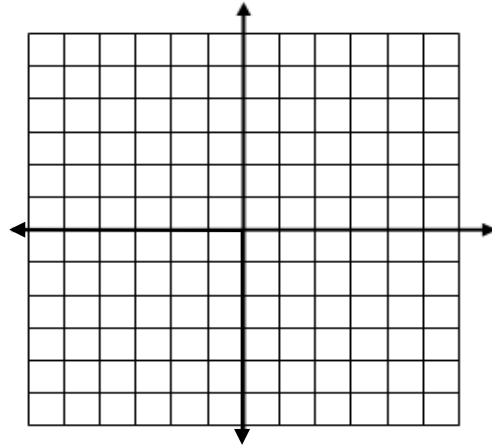
2) Graph the solutions to $x = y - 3$

x	y

How can the graphing calculator help us graph a linear function?

3) Graph the solutions to $3y + 6 = x$

x	y

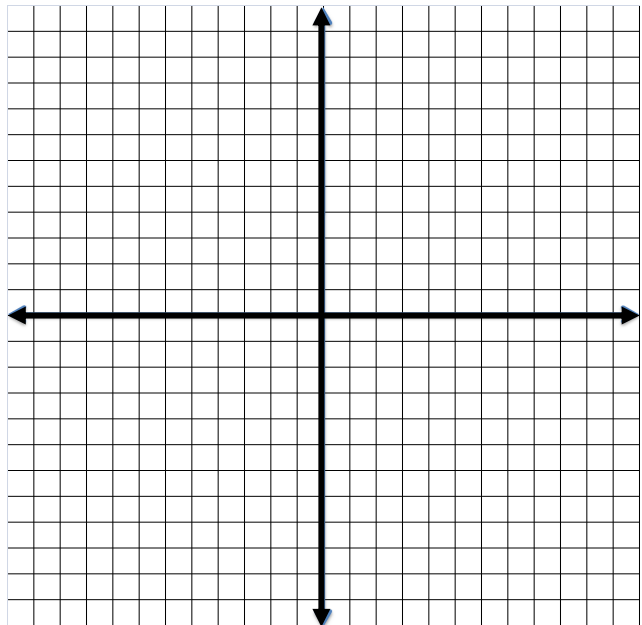**Algebra RH**   **HW #** _____

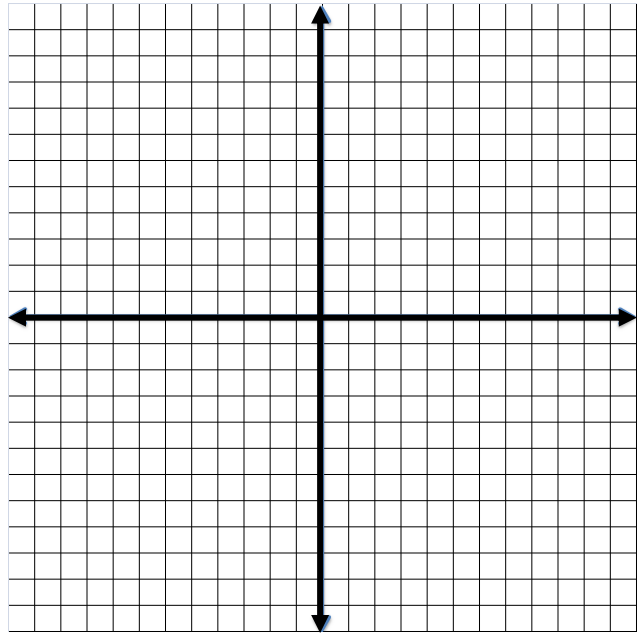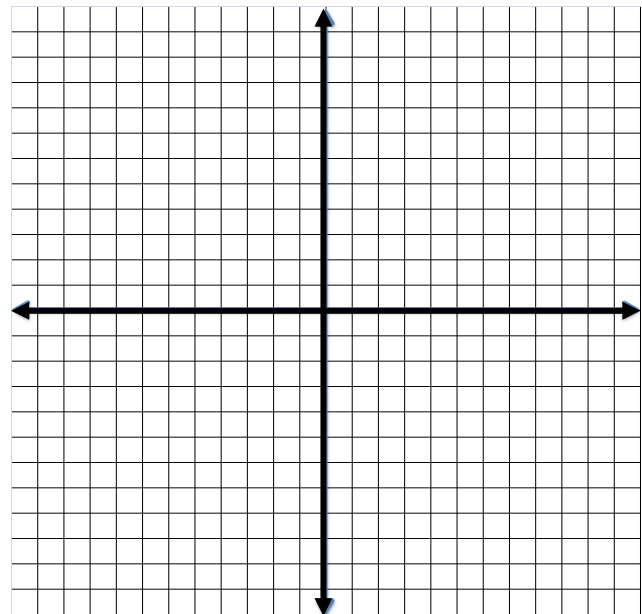Set up a table of values and draw the graph of each function.

1) $y = -2x + 3$

Domain: _____

Range: _____

2) $4y - x = -16$

3) $y = 3x$

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