

**Essential Question:** How do we graph linear functions written in standard form?

**Do Now:** Solve for  $y$  in each equation.

a)  $y - 5 = x$

b)  $2y = 2x - 4$

c)  $3x + 6y = 12$

### Graphing Linear Functions in Standard Form



Recall that a Linear Function is a function whose graph is a line. A Linear Function is easy to graph when it is in the form  $y = mx + b$ .

$$y = mx + b$$

The equation  $y = mx + b$  is shown with colored arrows pointing to each part: a red arrow points to  $y$ , a blue arrow points to  $x$ , and a green arrow points to  $b$ . The  $m$  and  $+$  are also in green. Horizontal lines are drawn above and below the equation.

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? \_\_\_\_\_

1.  $30x - 10y = 50$

2.  $2x - y = 1$

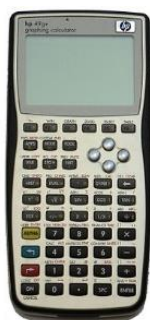
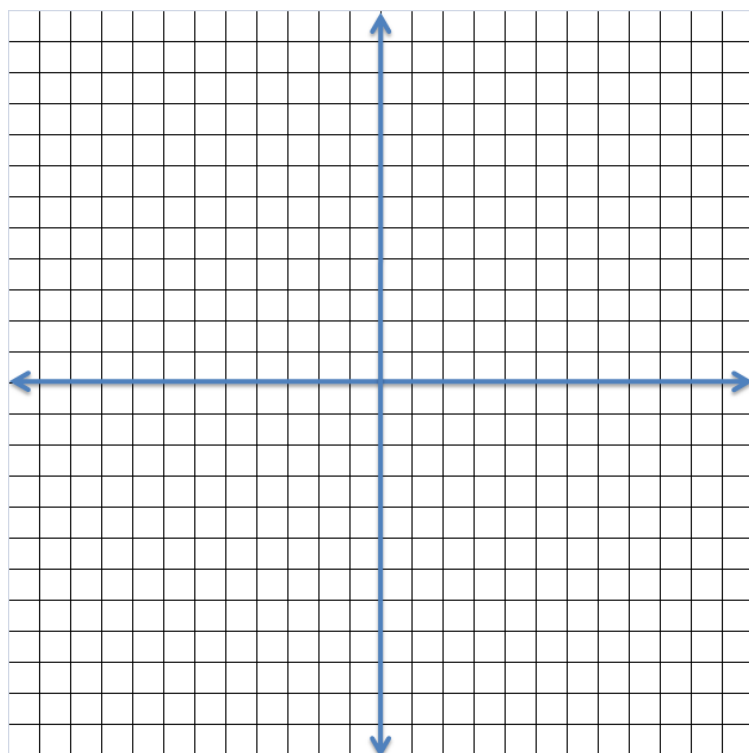
3.  $-4x + 3y = 9$

4.  $x - 5y = -15$

# Let's graph!

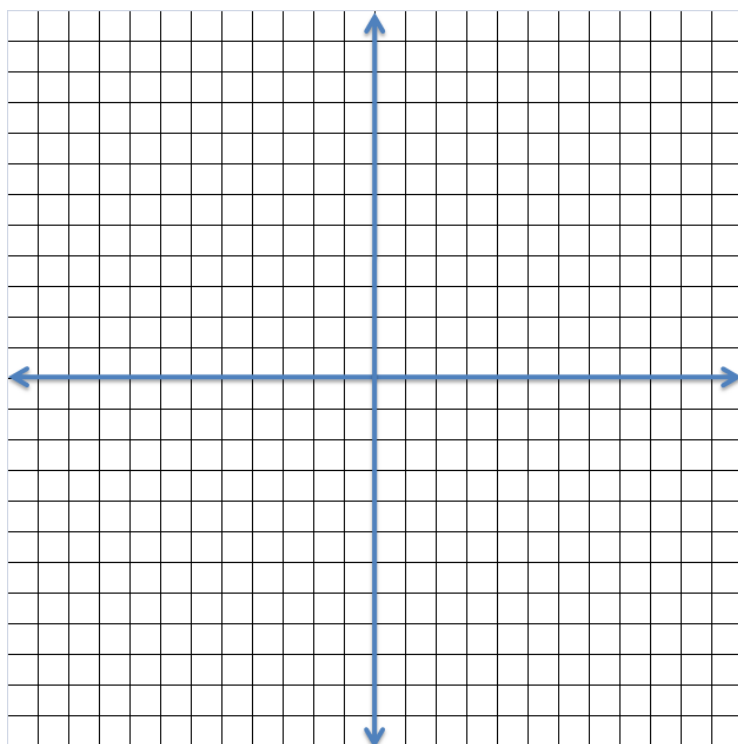
5. Draw the graph of  $4x + 2y = -6$ .

x	y



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

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



Domain: \_\_\_\_\_

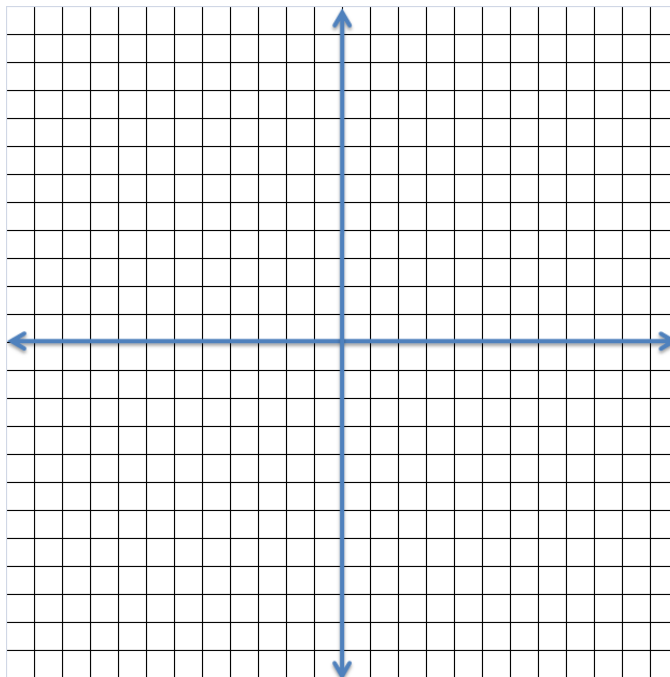
Range: \_\_\_\_\_



Creating a table of values for a linear function is easiest when the equation is written in \_\_\_\_\_ form.

**Directions:** Create a table of values for each equation and graph the function.

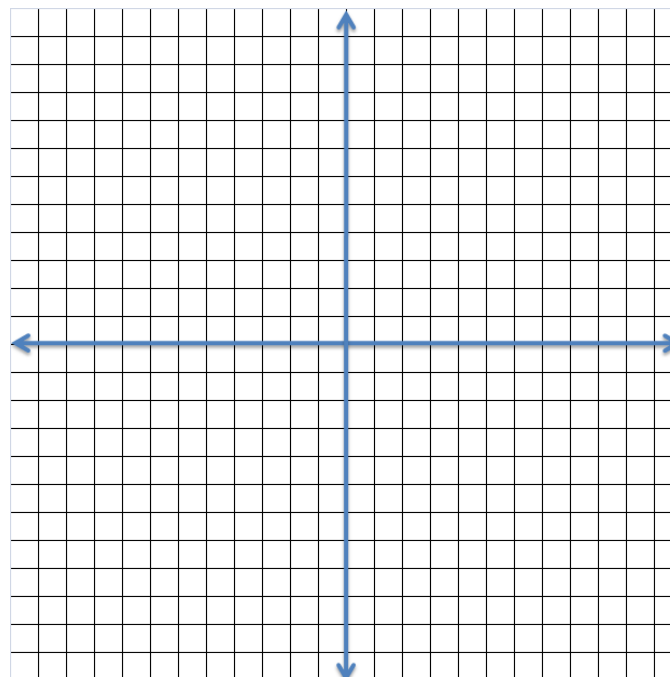
1.  $-5y = 5 + 15x$



**Domain:** \_\_\_\_\_

**Range:** \_\_\_\_\_

2.  $4y - x = -16$



**Domain:** \_\_\_\_\_

**Range:** \_\_\_\_\_

3. Claire says that the solution sets to  $4x + 2y = 9$  and  $y = -2x + 4.5$  are the same. Do you agree or disagree? Justify your response.