Graphing is a way to display data. It allows you to study and make conclusions or predictions about the relationships that are graphed. In Algebra I we will be focusing on graphing data, equations and functions that are in 2 variables. Generally "x and y", but you need to be flexible and apply your graphing skills to other relations like distance and time, height and time, or wages and time. Hummmm, notice how time seems to be a common variable? More on that later!

Vocabulary:
Table of Values – is a table that once completed will contain ordered pairs of values that make an equation true. In this class it will contain 3 columns, **x, y=equation and the ordered pair.** Later you will see this as a simple 2 column table of x and y values only.
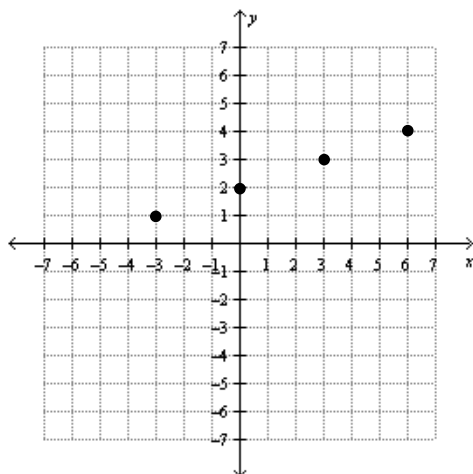
In order to graph a function, you will need to find ordered pairs that make the equation true.

Graph the following equation.

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

$\left(\frac{1}{3}\right)(3y) = (x + 6)\left(\frac{1}{3}\right)$
$y = \frac{1}{3}x + 2$

1. Solve for **y.**

2. Set up a table of values. <u>Unless otherwise stated, select **4** values for x. Yes, you will lose points if you use less than 4!</u>

3. Select values for **x**, remembering what the number is going to be multiplied by.
4. Solve for **y.**

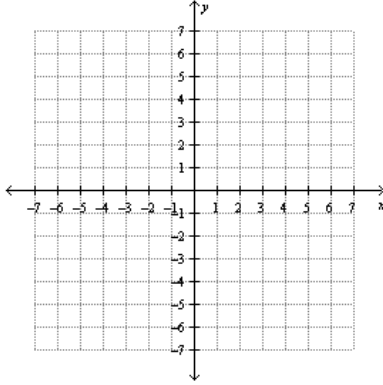| x	$y = \frac{1}{3}x + 2$	(x, y)
-3	$y = \frac{1}{3}(-3) + 2 = 1$	$(-3, 1)$
0	$y = \frac{1}{3}(0) + 2 = 2$	$(0, 2)$
3	$y = \frac{1}{3}(3) + 2 = 3$	$(3, 3)$
6	$y = \frac{1}{3}(6) + 2 = 4$	$(6, 4)$

5. Now graph.

QUESTIONS:
Points are graphed. Do we draw a line through the points?

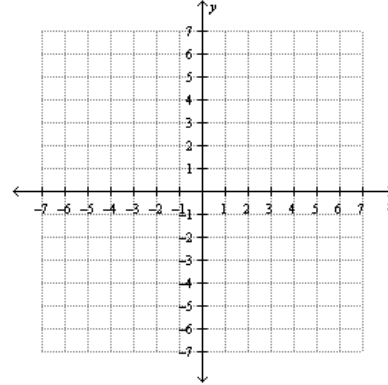Under what circumstances is a line drawn through the points?

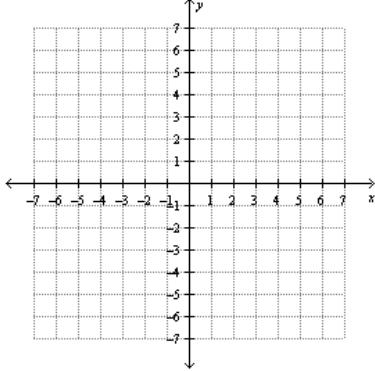NOT drawn through the points?

Graph the following functions:
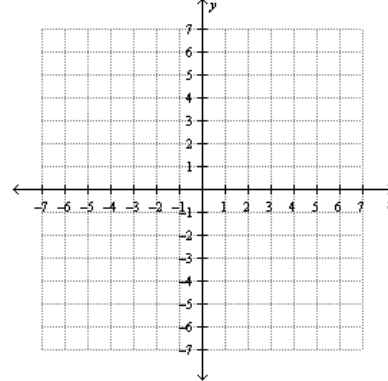
$y = \|x + 1\|$ *domain*: $\{x\|x = -4, -2, 0, 1, 3\}$	$-2x + y = 3$ *domain*: $\{x\|x = -5, -3, 1, 4\}$

$f(x) = x^2 + 2$ *domain*: $\{x\|x = -3, -1, 0, 1, 3\}$	$f(x) = 3x - 2$

Find y when x=-2, 0, and 2	Find f(x) when x=-2, 0, 1, 2
$y = \dfrac{1}{2}x + 3$	$f(x) = x^2$