SOLVING LINEAR INEQUALITIES

Solving a linear inequality is just like solving a regular equality (or a regular equation). Let's look at an example:

Solve for x:

$$4x - 3 > 2x - 2$$

We first start by combining our "like terms" or our "similar terms". Let's start by subtracting the 4x over to the right-hand side.

$$\begin{aligned} &4x - 3 > 2x - 2 \\ &-4x \qquad\quad - 4x \\ &-3 > -2x - 2 \end{aligned}$$

Now let's move our -2 over from the right-hand side.

$$\begin{aligned} &-3 > -2x - 2 \\ &+2 \qquad\quad + 2 \\ &-1 > -2x \end{aligned}$$

We're almost done. Now we have to divide both sides by -2. Since we're dividing by a negative number, we MUST switch the way the inequality sign is pointing.

$$\frac{-1 > -2x}{-2 \quad -2}$$

$$\frac{1}{2} < x$$

Therefore, x is greater than $\frac{1}{2}$.

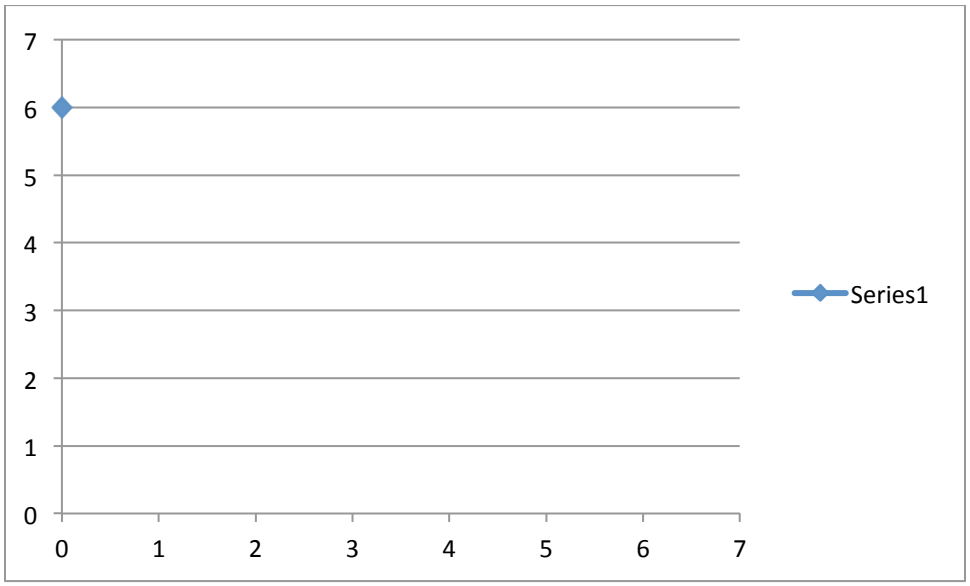
For a video on this, please reference http://www.youtube.com/watch?v=VgDe_D8ojxw

GRAPHING LINES

Graphing an equation is a simple process that can seem difficult at first. Let's take a look at an example:

Graph the equation $y = 2x + 6$.

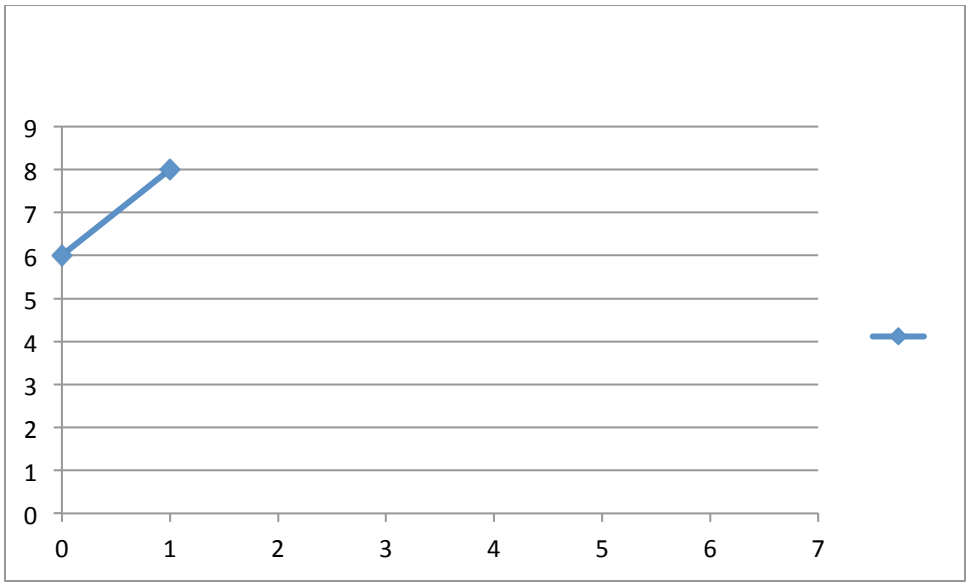
First we need to look at our y-intercept or our "b" in the form y = mx + b. In our example, our y-intercept is 6. So we start by plotting our y-intercept on the y-axis (or the axis that goes up and down).



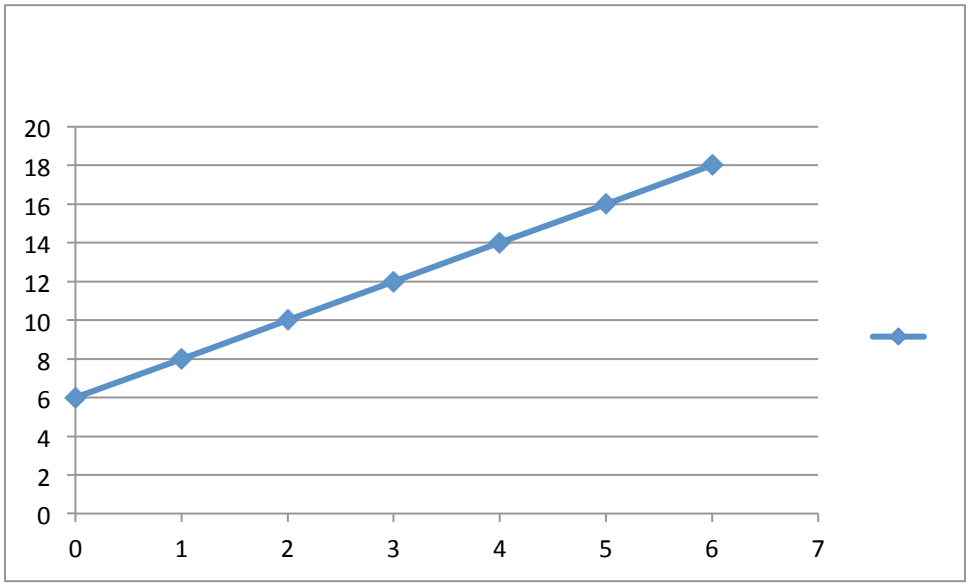
The next thing we need to do is find the next point. We do this by replacing x with 1 (because 1 is our next point) in our equation.

$$y = 2(1) + 6 = 8$$

So our next point on the graph is at (1 , 8) and connect them.



We continue this process. The next graph will show you on the interval [0 , 6].



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