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.

\[
\begin{align*}
4x - 3 & > 2x - 2 \\
-4x & \quad - 4x \\
-3 & > -2x - 2 \\
\end{align*}
\]

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

\[
\begin{align*}
-3 & > -2x - 2 \\
+2 & \quad + 2 \\
-1 & > -2x \\
\end{align*}
\]

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.

\[
\begin{align*}
-1 & > -2x \\
\frac{-1}{-2} & \quad \frac{-2}{-2} \\
\frac{1}{2} & < x \\
\end{align*}
\]

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

For a video on this, please reference http://www.youtube.com/watch?v=VgDe_D8ojxw
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 \([0, 6]\).

For a video on this, please reference http://www.youtube.com/watch?v=2UrcUfBizyw