How to Graph a Line By Jeanne St. Onge

Example is 2x + 3y = 6

There are three different ways to graph a line. They are a table, x and y intercepts, and slope intercept.

Table:



Insert five numbers into the table on the x side. Example -2, -1, 0, 1, and 2. Now when that is done, put each of those numbers, one at a time, into the equation (2x+3y=6) as x. Example 2(-2)+3y=6. Solve for y.

If you don't know how to solve for y, then follow these steps:

- 1. Follow the order of operations: P.E.M.D.A.S. $[2 \bullet (-2)=-4]$
- 2. Your problem should look like this: -4+3y=6. Your next steps are to get the y by it's self. So you would add 4 to the -4 and to the 6. Your equation will now look like this: 3y = 10
- 3. The next step is again to get y by it's self. You would divide the 3 by 3 and 10 by 3. Your finale equation is $y = \frac{10}{3}$
- 4. Now you have to put the numbers you got for y into the table. It should look like this:

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-2	10/3
-1	8/3
0	2
1	4/3
2	2/3

5. You must now graph the line using those points.

*Don't forget these important rules for every line:

- 1. Label the axes x and y.
- 2. Label the tick marks (1, 2, ect.)
- 3. Label the method used (table for this one)
- 4. Have at least 2 points on the graph. [(0,2) and (-1, 8/3) for this equation]

X and Y intercepts

First take the equation 2x + 3y = 6 and write it down twice. On the first one put a 0 in for y. On the second one, put a 0 in for x, it should look like this:

2x + 3(0) = 6 and 2(0) + 3y = 6. Then solve for the variable that is left. (If you are still confused, then follow the steps from above.)

Slope Intercepts

Always remember y = mx + b. When your equation is not in this format, you need to put it into this format. Example: 2x + 3y = 6. You need to get y by itself. Start with the x variable. Since it is a positive, you need to subtract 2x from 2x and from the other side of the equal sign (The 6). Your problem will now look like this: 3y = 6 - 2x or 3y = -2x + 6. The problem is still not in the proper form, you need to get y by itself still. You need to divide y by 3 and -2x + 6 by 3 too. Your problem will now look like this: $y = \frac{-2x}{3} + \frac{6}{3}$ or $y = \frac{-2x}{3} + 2$. To graph the line, you would

start at b or in this case you would start at (0,2). You will move according to $\frac{rise}{run}$.

You will move down 2 (because the number on top is -2), and you will go over 3 to the right (because the number on the bottom is 3). You will keep doing this until you need to stop. Remember the four important rules.