

Methods for Graphing Linear Equations

Method 1 for Graphing Linear Equations (from Section 2.2)

- 1) Choose 3 x or y values, unless you have been given values to use.
 - a. Some easy choices, $x = 0$ (x-intercept), $y = 0$ (y-intercept), $x = 1$ or $y = 1$.
- 2) Plug each of those into the equation & solve for the other variable.
 - a. Some people like to make a chart, like the one to the right.
 - b. Others like to set the up as ordered pairs
- 3) Plot each of the 3 ordered pairs
- 4) Connect the 3 plotted points.

x	y
0	
	0
1	

Method 2 for Graphing Linear Equations

- 1) If the equation is not in slope-intercept form, convert it.
- 2) Plot the intercept, $(0, b)$
- 3) Use the meaning of slope to find at least one more point on the line. Two points are preferred, start from a plotted point!
 - a. $+m = \frac{\text{move up } y \text{ units}}{\text{move to right } x \text{ units}} = \frac{\text{move down } y \text{ units}}{\text{move to left } x \text{ units}}$
eg $+\frac{2}{4} = \frac{+2}{+4} = \frac{\text{up } 2}{\text{right } 4} = \frac{-2}{-4} = \frac{\text{down } 2}{\text{left } 4}$
 - b. $-m = \frac{\text{move down } y \text{ units}}{\text{move to right } x \text{ units}} = \frac{\text{move up } y \text{ units}}{\text{move to left } x \text{ units}}$
eg $-\frac{2}{4} = \frac{-2}{+4} = \frac{\text{down } 2}{\text{right } 4} = \frac{+2}{-4} = \frac{\text{up } 2}{\text{left } 4}$
- 4) Connect the 3 plotted points.

Example for Method 2:

Graph the line $4x + 2y = 6$.

- First change the form of the line from Standard to Slope-Intercept.
 - $4x + 2y = 6 \rightarrow -4x \rightarrow 2y = -4x + 6 \rightarrow \div 2 \rightarrow y = -2x + 3$
- The slope is -2 and the y-intercept is $(0, 3)$. Since the slope is -2 , we know that for each unit to the right, the line goes down 2.
- Since slope is the change in y divided by the change in x, you can add the denominator from your current x value, and add the numerator to your current y value. We started at the y-intercept $(0, 3)$, slope is -2 so I added 1 to 0 for the new x value and -2 to the 3 for the new y value to get $(1, 1)$.
 - So starting at $(0, 3)$ the next point to the right will be $(1, 1)$. The next point to the right after $(1, 1)$ will be $(2, -1)$.

