**Graphing a Line**

**Intercept Method**

* We use the intercept method, which requires us to find both the x and y intercepts.
* To find the intercepts we replace each variable with 0 and solve for the other. This will give us two pairs of coordinates to map out and connect to form the line.

***Example:***

2x + 6y – 18 = 0

Make x = 0

2(0) + 6y – 18 = 0

Isolate and solve for y

This is the y-intercept or point (0,3)

6y – 18 = 0 6y = 18 6y = 18 y = 3

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 6 6

Make y = 0

2x + 6(0) – 18 = 0

Isolate and solve for x

This is the x-intercept or point (9,0)

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 2 2

2x – 18 = 0 2x = 18 2x = 18 x = 9

With these two points, you can plot them on a Cartesian plane and connect the two points with a line.

**Rise Over Run Method**

Requirement:

* Equation must be in functional form (y=ax+b)

Example:

Y = 2x + 1

**Step 1 – Plot your y-intercept (“b” value) on the y-axis**

 \*In all cases the values will be located at (0,b)\*

**Step 2 – Set your slope (“a” value) up as a fraction**

2 = $\frac{2}{1}$

**Step 3 – Move from your marked point (y-intercept) using your slope.**

Note – positive y means up ; negative y means down ; positive x means right

$\frac{Rise}{Run}$ $\frac{\uparrow \downright }{\rightarrow }$

$\frac{Δy}{Δx}$ = $\frac{up or down}{right } $= $\frac{2}{1}$ = $\frac{up 2}{right 1 }$



**Step 4 – Connect the two points with a ruler**

Try these examples...

3x + 6y – 12 = 0 2x + y = 6 X – 3y + 9 = 0

5x – 5y +5 = 0 2y + 4x = 8 4y = 16