Day 5 – Graphing Linear Equations – Notes

When we write an equation of a line, we use **slope intercept form** which is ***y = mx + b***, where **m** represents the **slope** and **b** represents the **y-intercept.**

Slope Intercept Form

$y = mx + b$

m: slope b: y=intercept

Ex. Going back to yesterday's notes, since you know the slope and y-intercept, create the equation for each line.

Slope and Y-intercepts from an Equation

The equation for a line includes and represents the slope and y-intercept. The equation for a line is **y = mx + b**, where *m* is the slope and *b* is the y-intercept. It is called **slope intercept form.**

Slope Intercept Form

y = mx + b

m: slope

b: y-intercept

a. $y = -4x + 1$

Slope: -4 y-intercept: $(0, 1)$

b. $3x - 2y = -16$

$-3x \quad -3x$

$\frac{-2y}{-2} = \frac{-3x}{-2} - \frac{16}{-2}$

$y = \frac{3}{2}x + 8$

Slope: $3/2$ y-intercept: $(0, 8)$

Graphing Linear Functions

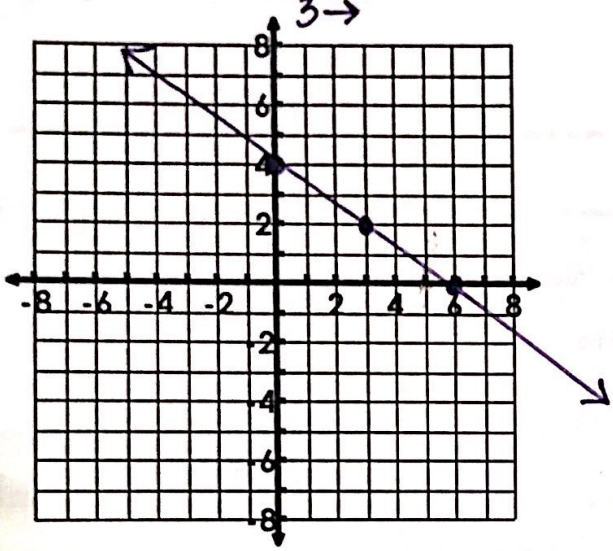
When you graph equations, you have to be able to identify the slope and y-intercept from the equation.

Step 1: Solve for y (if necessary)
Step 2. Plot the y-intercept.
Step 3: From the y-intercept, use the slope to calculate another point on the graph.
Step 4: Connect the points with a ruler or straightedge.

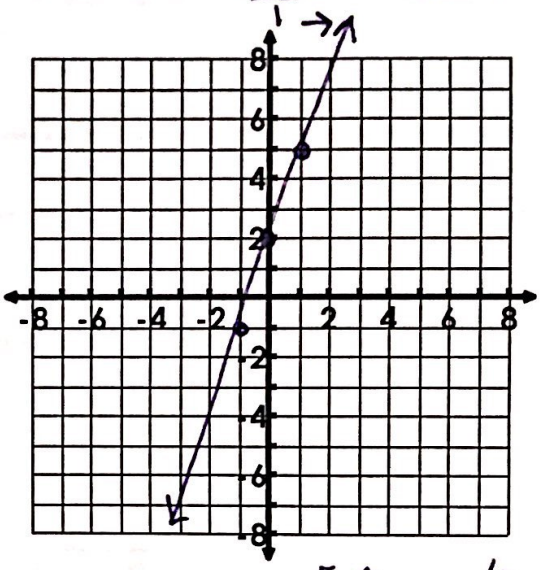
$$\textbf{Slope} = \frac{change\ in\ y}{change\ in\ x} = \frac{+\uparrow\ \ -\downarrow}{+\rightarrow\ \ -\leftarrow}$$

Ex. Graph the following lines:

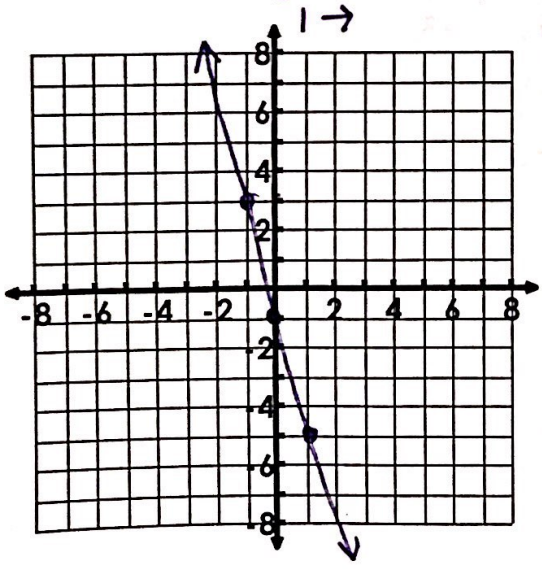
A. $y = -\frac{2}{3}x + 4$ m = $\frac{-2\downarrow}{3\rightarrow}$ b = 4



y = 3x + 2 m = $\frac{3\uparrow}{1\rightarrow}$ b = (0,2)



C. y = -4x – 1 m = $\frac{-4\downarrow}{1\rightarrow}$ b = (0,-1)



D. $y = \frac{5}{3}x - 3$ m = $\frac{5\uparrow}{3\rightarrow}$ b = (0,-3)