Notes: Slope-Intercept Form

Graphing a line from slope-intercept form:

slope $\frac{\Delta y}{\Delta x}$

$$y = mx + b$$

y-intercept $(0, \#)$

1. Plot the y-intercept, the point $(0, b)$

2. From the y-intercept, use the slope (m) to find more points on the line

- Remember that $m = \frac{\Delta y}{\Delta x} = \frac{vertical\ change}{horizontal\ change} = \frac{\#\ of\ units\ up\ or\ down}{\#\ of\ units\ right\ or\ left}$

- If the slope is **positive,** the line should be increasing.
  You can move up and to the right or down and to the left

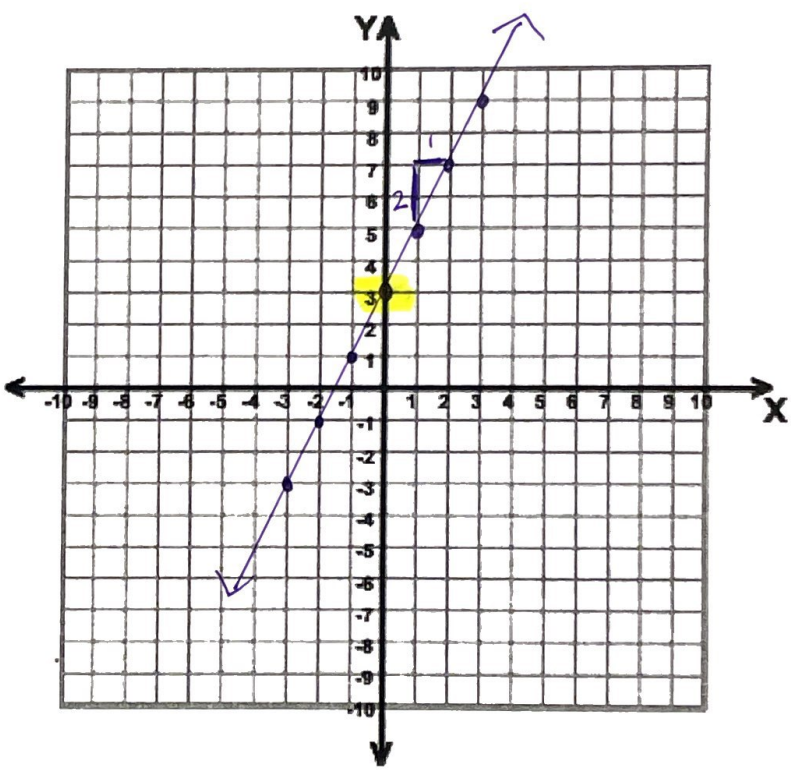
- If the slope is **negative,** the line should be decreasing.
  You can move down and to the right or up and to the left.

Examples:

1. Graph the solutions to $y = 2x + 3$

We did this before by first making a table of solution points, then graphing all of the points.

x	2x+3	y
-3	2(-3)+3	-3
-2	2(-2)+3	-1
-1	2(-1)+3	1
0	2(0)+3	3
1	2(1)+3	5
2	2(2)+3	7
3	2(3)+3	9



(0, 3)

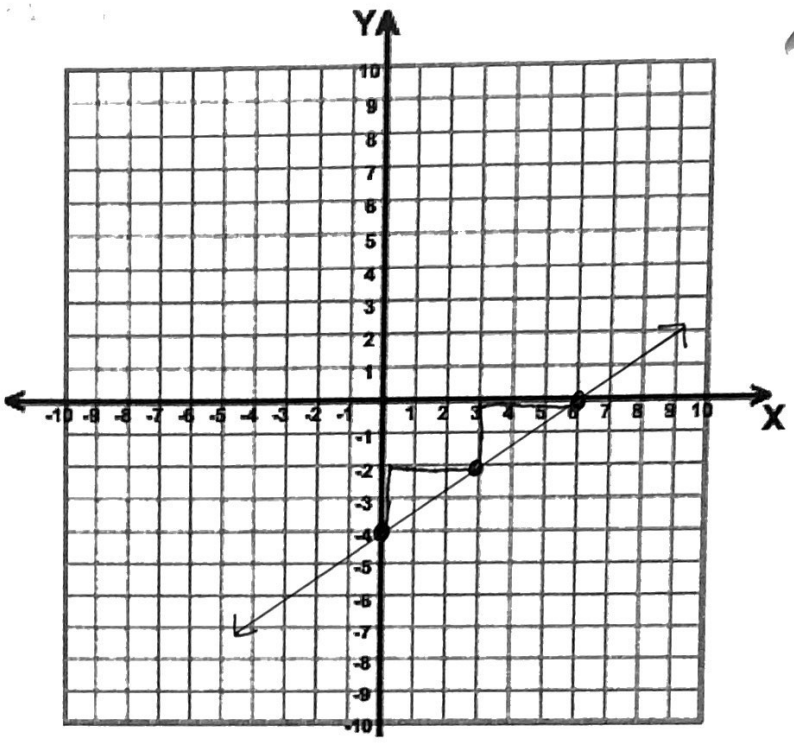
y-intercept 3

slope $\frac{\Delta y}{\Delta x} = \frac{2}{1} = 2$

#2. Graph the solutions to $y = \frac{2}{3}x - 4$.

y-intercept -4

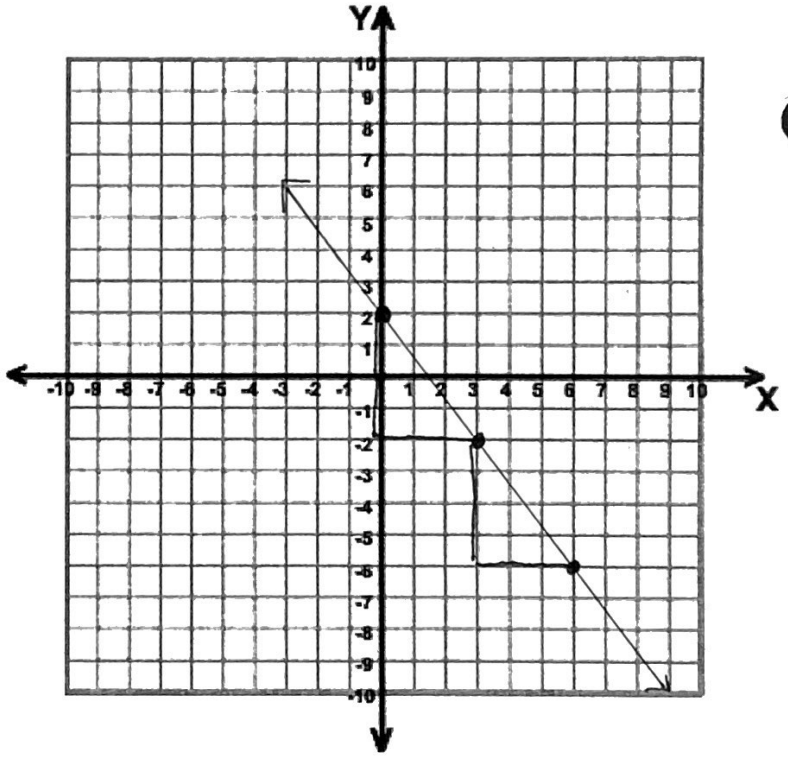
slope $\frac{2}{3}$



#3. Graph the solutions to $y = -\frac{4}{3}x + 2$.

y-intercept 2

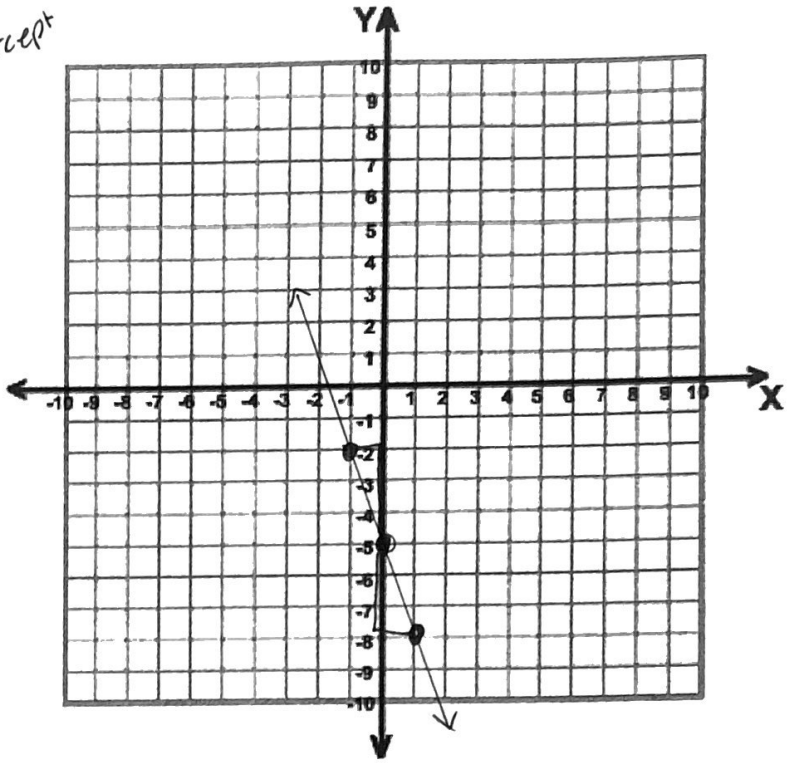
slope $\frac{-4}{3}$



. Graph the solutions to $y = -3x - 5$.

slope $\frac{-3}{1}$ $\downarrow$ $\frac{3}{-1}$

y-intercept -5



#5. Graph the solutions to $y = \frac{1}{2}x$.

slope $\frac{1}{2}$

y-intercept 0