# *Slope-Intercept Form:* Graphing Lines

An equation is in **slope-intercept form** if it is written like this:

$$y = mx + b$$

($m$: slope; $b$: $y$-intercept)

If you have an equation in slope-intercept form, you can use the slope and $y$-intercept to graph the line.

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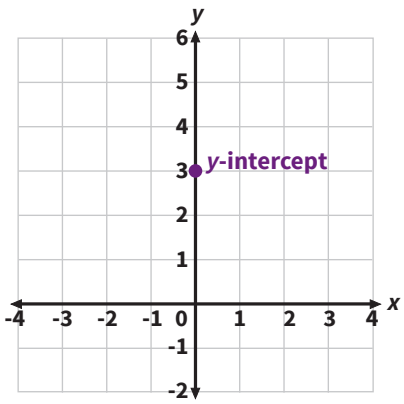
**Let's try an example! Graph $y = 2x + 3$.**

First, plot the $y$-intercept. The $y$-intercept is **3**, so that's where the line will cross the $y$-axis. Place a point at (0, **3**).



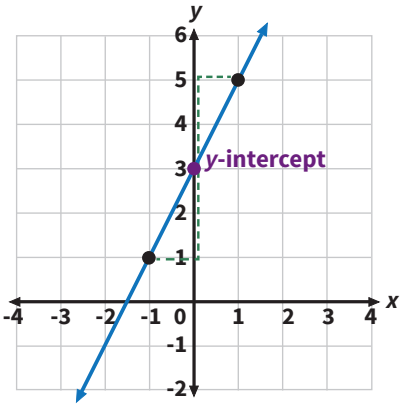

Next, use the slope to plot more points on the line. Remember:

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

The slope is **2**, or $\frac{2}{1}$. So, the rise is 2 and the run is 1.

From the $y$-intercept, go up 2 and right 1 to plot another point on the line. You can also go in the opposite direction. From the $y$-intercept, go down 2 and left 1 to plot a third point on the line.

Once you have a few points, draw a straight line connecting them.

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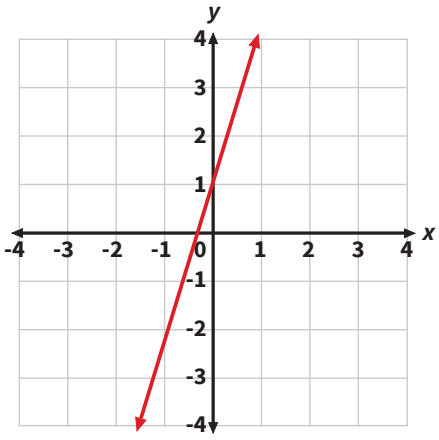
**Try it yourself! For each equation, write the slope and $y$-intercept. Then, graph the line.**

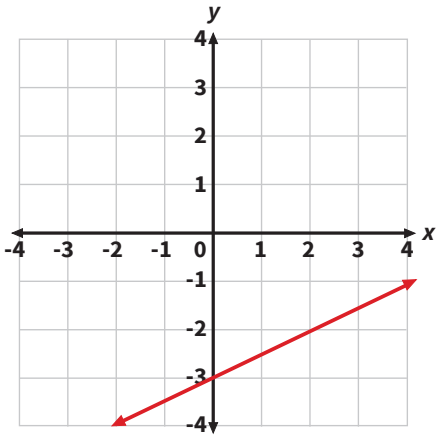
$y = 3x + 1$

slope = 3 $y$-intercept = 1




$y = \frac{1}{2}x - 3$

slope = $\frac{1}{2}$ $y$-intercept = −3

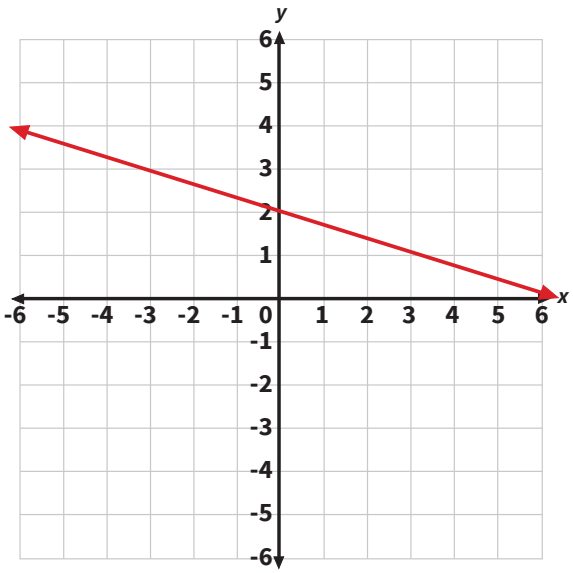


# *Slope-Intercept Form:* Graphing Lines

**Keep going!** **For each equation, write the slope and *y*-intercept. Then, graph the line.**

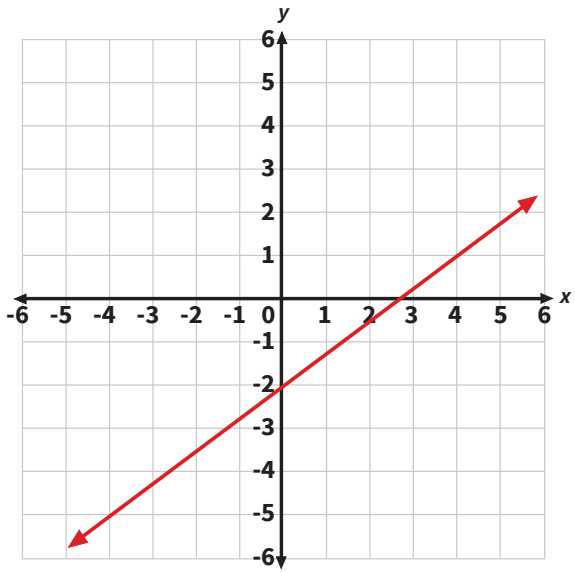
$y = -\frac{1}{3}x + 2$

slope = $-\frac{1}{3}$ *y*-intercept = 2



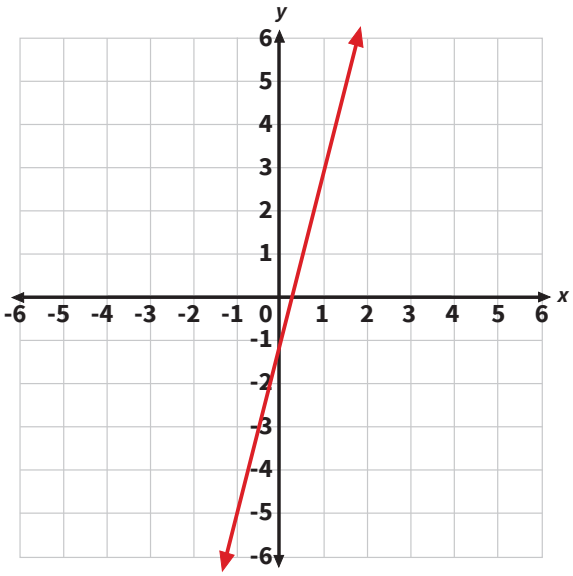
$y = \frac{3}{4}x - 2$

slope = $\frac{3}{4}$ *y*-intercept = −2



$y = 4x - 1$

slope = 4 *y*-intercept = −1



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

slope = $-\frac{3}{2}$ *y*-intercept = −3