

# Slope-Intercept Form: Graphing Lines

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

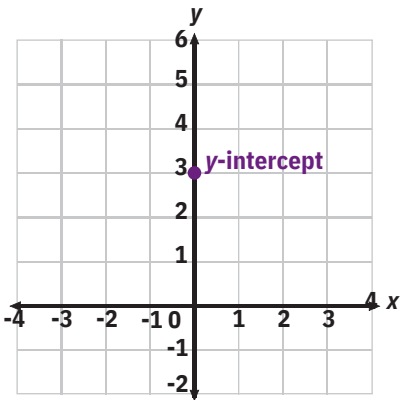
$$y = mx + b$$

↑ slope      ↑ y-intercept

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

## 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)**.



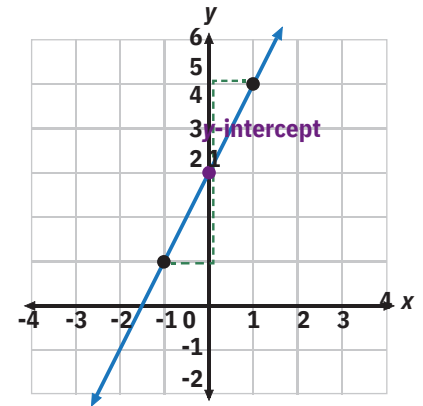
Next, use the slope to plot more points on the line. Remember:

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

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.

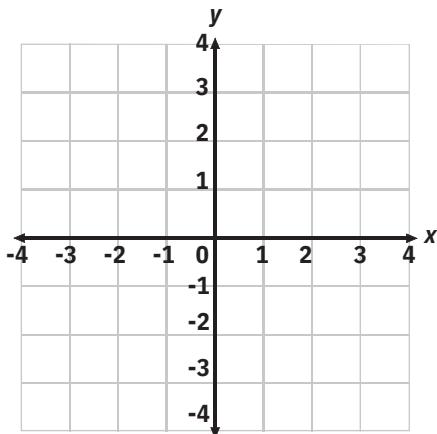
Once you have a few points, draw a straight line connecting them.



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

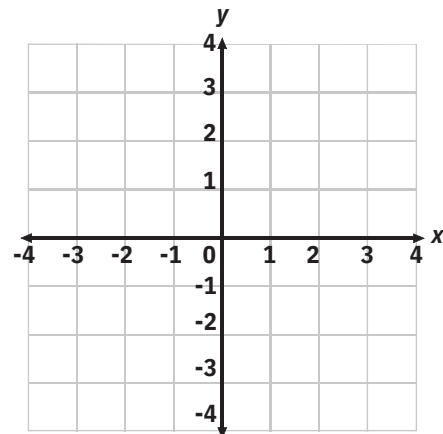
$$y = 3x + 1$$

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_



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

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_

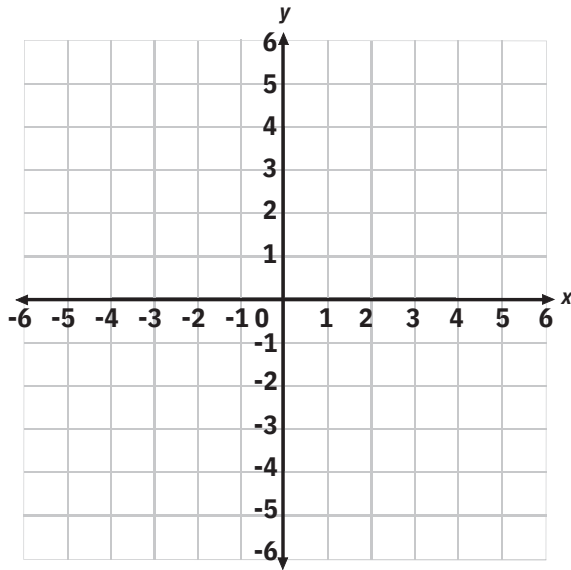


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**Keep going!** For each equation, write the slope and y-intercept. Then, graph the line.

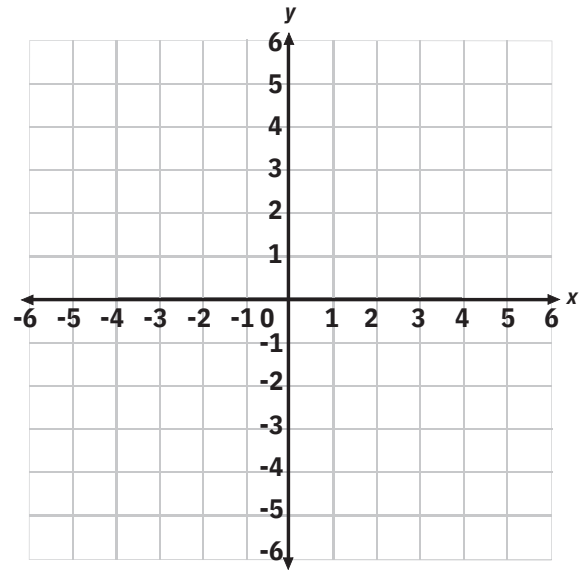
$$y = -\frac{1}{3}x + 2$$

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_



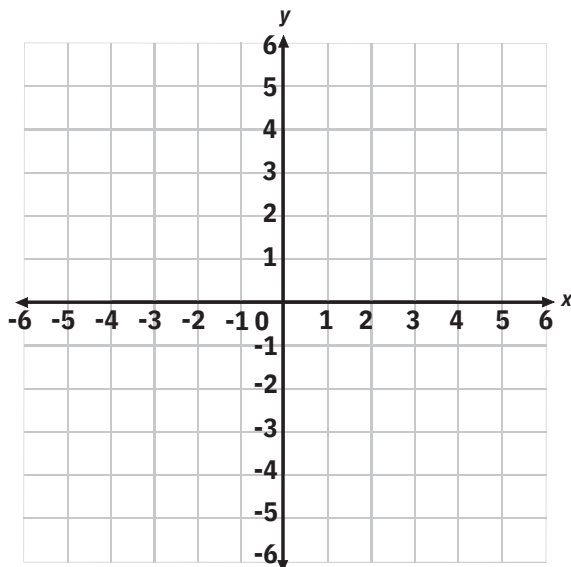
$$y = -\frac{3}{4}x - 2$$

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_



$$y = 4x - 1$$

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_



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

slope = \_\_\_\_\_ y-intercept = \_\_\_\_\_

