SLOPE-INTERCEPT FORM If you write the equations in Example 1 as $y = 2x + 0$ and $y = 1x + 3$, you can see that the x-coefficients, 2 and 1, are the slopes of the lines, while the constant terms, 0 and 3, are the y-intercepts. In general, a line with equation $y = mx + b$ has slope m and y-intercept b. The equation $y = mx + b$ is said to be in **slope-intercept form**.

KEY CONCEPT *For Your Notebook*

Using Slope-Intercept Form to Graph an Equation

STEP 1 **Write** the equation in slope-intercept form by solving for y.

STEP 2 **Identify** the y-intercept b and use it to plot the point $(0, b)$ where the line crosses the y-axis.

STEP 3 **Identify** the slope m and use it to plot a second point on the line.

STEP 4 **Draw** a line through the two points.

EXAMPLE 2 Graph an equation in slope-intercept form

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

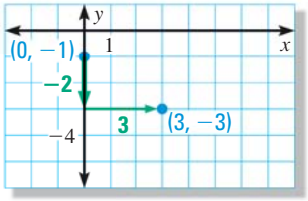
Solution

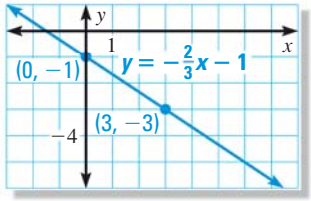
STEP 1 The equation is already in slope-intercept form.

STEP 2 **Identify** the y-intercept. The y-intercept is -1, so plot the point $(0, -1)$ where the line crosses the y-axis.

STEP 3 **Identify** the slope. The slope is $-\frac{2}{3}$, or $\frac{-2}{3}$, so plot a second point on the line by starting at $(0, -1)$ and then moving down 2 units and right 3 units. The second point is $(3, -3)$.

STEP 4 **Draw** a line through the two points.





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ANOTHER WAY

Because $-\frac{2}{3} = \frac{2}{-3}$, you could also plot a second point by moving up 2 units and left 3 units.

GUIDED PRACTICE for Examples 1 and 2

Graph the equation. *Compare* the graph with the graph of $y = x$.

1. $y = -2x$ **2.** $y = x - 2$ **3.** $y = 4x$

Graph the equation.

4. $y = -x + 2$ **5.** $y = \frac{2}{5}x + 4$ **6.** $y = \frac{1}{2}x - 3$

7. $y = 5 + x$ **8.** $f(x) = 1 - 3x$ **9.** $f(x) = 10 - x$