

Lesson 4 Reteach

Slope-Intercept Form

Linear equations are often written in the form $y = mx + b$. This is called the **slope-intercept form**. When an equation is written in this form, m is the slope and b is the y-intercept.

Example 1 State the slope and the y-intercept of the graph of $y = x - 3$.

$y = x - 3$	Write the original equation.
$y = 1x + (-3)$	Write the equation in the form $y = mx + b$.
$\begin{array}{c} \uparrow \quad \uparrow \\ y = mx + b \end{array}$	$m = 1, b = -3$

The slope of the graph is 1, and the y-intercept is -3 .

You can use the slope-intercept form of an equation to graph the equation.

Example 2 Graph $y = 2x + 1$ using the slope and y-intercept.

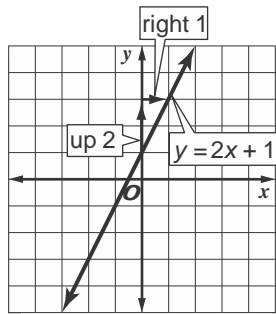
Step 1 Find the slope and y-intercept.

$y = 2x + 1$ slope = 2, y-intercept = 1

Step 2 Graph the y-intercept 1.

Step 3 Write the slope 2 as $\frac{2}{1}$. Use it to locate a second point on the line.

$m = \frac{2}{1}$ ← change in y : up 2 units
 ← change in x : right 1 unit



Step 4 Draw a line through the two points.

Exercises

State the slope and the y-intercept for the graph of each equation.

1. $y = x + 1$

2. $y = 2x - 4$

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

Graph each equation using the slope and the y-intercept.

4. $y = 2x + 2$

5. $y = x - 1$

6. $y = \frac{1}{2}x + 2$

