

Lesson Summary

The equation $y = mx + b$ is in slope-intercept form. The number m represents the slope of the graph, and the point $(0, b)$ is the location where the graph of the line intersects the y -axis.

To graph a line from the slope-intercept form of a linear equation, begin with the known point, $(0, b)$, and then use the slope to find a second point. Connect the points to graph the equation.

There is only one line passing through a given point with a given slope.

Problem Set

Graph each equation on a separate pair of x - and y -axes.

1. Graph the equation $y = \frac{4}{5}x - 5$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.
2. Graph the equation $y = x + 3$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.
3. Graph the equation $y = -\frac{4}{3}x + 4$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.
4. Graph the equation $y = \frac{5}{2}x$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.
5. Graph the equation $y = 2x - 6$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.
6. Graph the equation $y = -5x + 9$.
 - a. Name the slope and the y -intercept point.
 - b. Graph the known point, and then use the slope to find a second point before drawing the line.

7. Graph the equation $y = \frac{1}{3}x + 1$.
- Name the slope and the y -intercept point.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
8. Graph the equation $5x + 4y = 8$. (Hint: Transform the equation so that it is of the form $y = mx + b$.)
- Name the slope and the y -intercept point.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
9. Graph the equation $-2x + 5y = 30$.
- Name the slope and the y -intercept point.
 - Graph the known point, and then use the slope to find a second point before drawing the line.
10. Let l and l' be two lines with the same slope m passing through the same point P . Show that there is only one line with a slope m , where $m < 0$, passing through the given point P . Draw a diagram if needed.