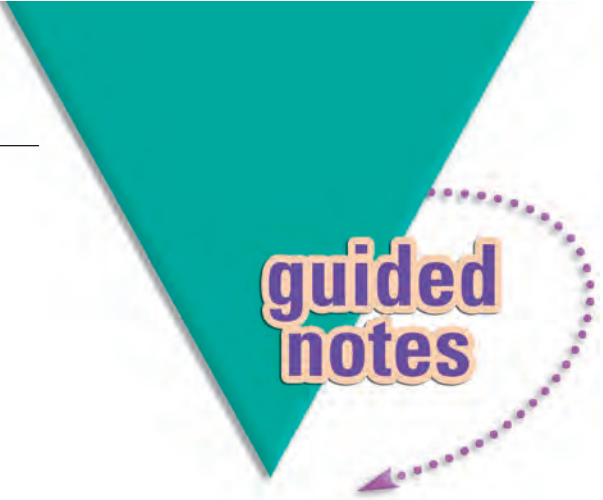


NAME _____

Module 8 Writing Linear Equations of Two Variables

Lesson 2 Writing Equations of Lines, Given the Slope and y-Intercept



guided notes

Lesson Objectives

- Write the equation of a line using slope-intercept form when given a graph.
- Write the equation of a line using slope-intercept form when given the slope and y-intercept.
- Write the equations of vertical and horizontal lines.
- Write the equations of lines parallel and perpendicular to given lines.

A line's **y-intercept** _____ is the y -coordinate of the point where the line intersects the y -axis.

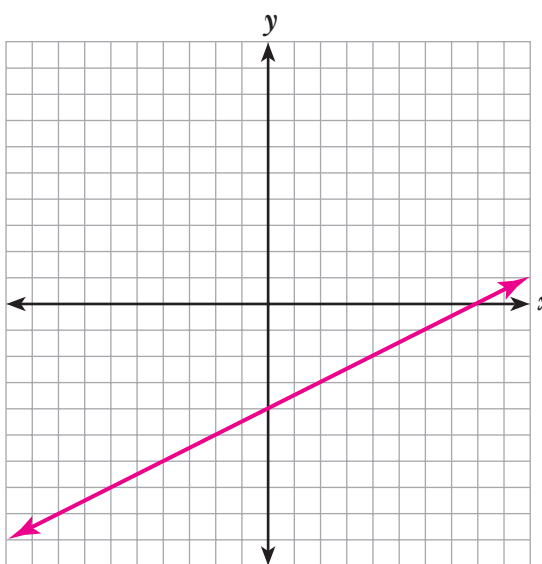
The **slope** _____ of a line and its **y-intercept** _____ must be known to write the equation of a line.

Slope-intercept form for the equation of a line is $y = mx + b$ _____.

In slope-intercept form, m stands for **slope** _____, and b stands for the **y-intercept** _____.

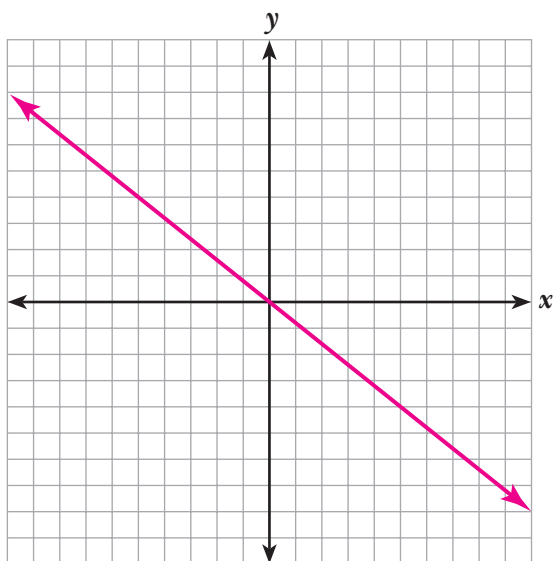
1 Write the equation of the line.

$$y = \frac{1}{2}x - 4$$



- 2 Write the equation of the line.

$$y = -\frac{4}{5}x$$



The slope of a horizontal line is

0. The slope of a vertical line is undefined. The equation of a horizontal line takes the form

$y = b$. The equation of a vertical line takes the form

$x = a$.

- 3 Write the equation of the line given:

Slope: $-\frac{5}{6}$

y-intercept: 4

$$y = -\frac{5}{6}x + 4$$

- 4 Write the equation of the line given:

Slope: undefined

Passes through $(-2, -4)$

$$x = -2$$

- 5 Write the equation of the line given:

Slope: 0

Passes through $(1, -9)$

$$y = -9$$

If two lines have the same slope, they are

parallel.

If two nonvertical lines are perpendicular,

their slopes are negative reciprocals.

The reciprocal of $\frac{a}{b}$ is $\frac{b}{a}$.

The negative reciprocal of $\frac{2}{3}$ is $-\frac{3}{2}$.

- 6 Write the equation of the line given:

Parallel to $y = -\frac{4}{7}x - 2$

y-intercept: -3

$$y = -\frac{4}{7}x - 3$$

- 7 Write the equation of the line given:

Perpendicular to $y = -\frac{3}{4}x + 5$

y-intercept: -2

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

Parallel lines have the same

slope.

Nonvertical perpendicular lines have slopes

that are negative reciprocals.

Horizontal lines have a slope of

zero.

Vertical lines have an undefined

slope.