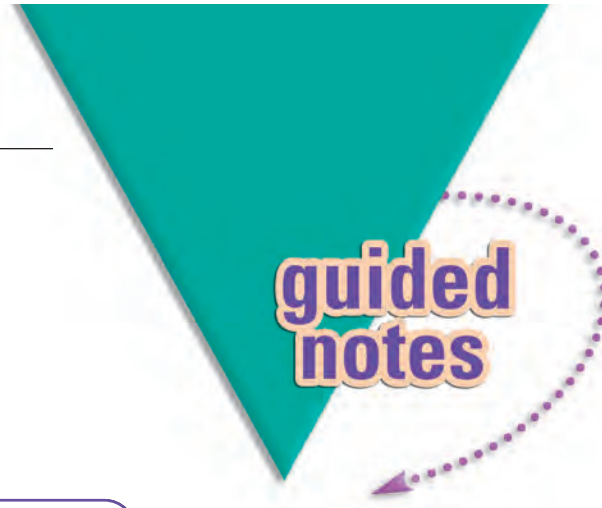


NAME _____

Module 8 Writing Linear Equations of Two Variables
Lesson 3 Writing Equations of Lines, Given a Point and the Slope or Two Points



guided notes

Lesson Objectives

- Write the equation of a line in slope-intercept form when given the slope of the line and a point on the line.
- Write the equation of a line in slope-intercept form when given two points on the line.

For a nonvertical line which has slope m and passes through the point (x_1, y_1) , the point-slope form for a linear equation is $y - y_1 = m(x - x_1)$.

1 Find the equation in slope-intercept form of the line that contains the point (6, 4) and has a slope of $\frac{2}{3}$.
 $y = \frac{2}{3}x$

2 Find the equation in slope-intercept form of the line that contains the point (8, 9) and has a slope of 0.
 $y = 9$

Any line with a slope of zero is a **horizontal** line.

The equation of any horizontal line is of the general form

$$y = b$$

Any line with an undefined slope is a **vertical** line.

The equation of any vertical line is of the general form

$$x = a$$

The slopes of parallel lines are the **same**.

The slopes of perpendicular lines are **negative reciprocals**.

- 3 Find the equation in slope-intercept form of the line through the point (0, 0) that is parallel to the graph of $y = \frac{2}{3}x + 7$.

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

- 4 Find the equation in slope-intercept form of the line through the point (-2, 3) that is perpendicular to the graph of $y = -5x - 2$.

$$y = \frac{1}{5}x + \frac{32}{5}$$

To find the equation of a line given two points on the line, find the **slope** _____ and then use the point-slope form of a linear equation. Choose **either** _____ point to use in the point-slope form.

- 5 Find the equation in slope-intercept form of the line through the points (5, 1) and (9, 5).

$$y = x - 4$$

- 6 Find the equation of the line through the point (2, 0) that is parallel to the line through the points (4, -2) and (-1, 1).

$$y = -\frac{3}{5}x + \frac{6}{5}$$
