DIGITAL

guided notes

NAME _____

Module 8   Writing Linear Equations of
            Two Variables
Lesson 1   Finding Slope

Lesson Objectives

- Find the slope of a line given the graph.
- Find the slope of a line given two points on the line.
- Find the slope of horizontal and vertical lines

In mathematics, the measure of the steepness of a line is called its slope.

The slope is the ratio _____ to _____.

1▶ Use $\frac{rise}{run}$ to find the slope. _____

The slope of a line through (x_1, y_1) and (x_2, y_2) is

slope $m = \dfrac{\text{change in } y}{\text{change in } x} = $ _____.

Remember that "rise" is the vertical change

between points or the difference in the y-values,

and "run" is the horizontal change or difference

in the x-values of two points. The formula for
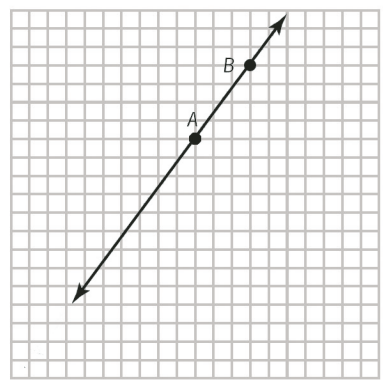
finding the slope of any line is the quantity $y_2 - y_1$ divided by the quantity

$x_2 - x_1$. When we name a point (x_1, y_1) and another (x_2, y_2), we are using

what is known as _____ notation.

2▶ Use the formula to find the slope of the line passing through the points

$(7, -7)$ and $(-4, 4)$. _____

The slope of any horizontal line is _____ because the

difference in the y-coordinates is zero.

The slope of any vertical line is _____ because the

difference in the x-coordinates is zero.

3 ▶ Find the slope of the line passing through the points (7, 5) and (7, 6).

_____

Nonvertical parallel lines have _____ slopes.

Vertical parallel lines have undefined slopes.

The slopes of nonvertical perpendicular lines are _____

reciprocals.

4 ▶ Find the slope of a line parallel to the line passing through the points

(3, 5) and (6, 1). _____

Today we have studied the following characteristics of slope:

• Slope $= \dfrac{\text{rise}}{\text{run}}$

• The slope can be found from any two points, (x_1, y_1) and (x_2, y_2), on a line.

• Slope $m = \dfrac{\text{change in } y}{\text{change in } x} = \dfrac{y_2 - y_1}{x_2 - x_1}$

• Slope of a horizontal line is equal to zero.

• Slope of a vertical line is undefined.

• Slopes of nonvertical parallel lines are equal.

• Slopes of nonvertical perpendicular lines are negative reciprocals.

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