

SECTION 6

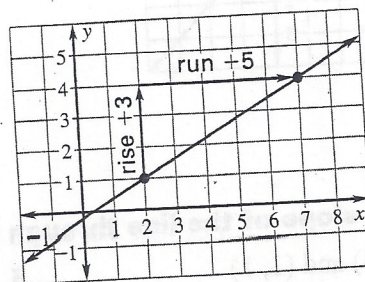
Algebra

Lesson 21: Slope of a Line

The **slope** of a line is the ratio of its vertical change, called the **rise**, to its horizontal change, called the **run**. To find the slope of a line, pick two points. Count the number of vertical units up (+) or down (-), and the number of horizontal units right (+) or left (-), from one point to another.

EXAMPLE 1 Find the slope of the line.

$$\begin{aligned} \text{Slope} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{3 \text{ units up}}{5 \text{ units right}} \\ &= \frac{3}{5} \end{aligned}$$

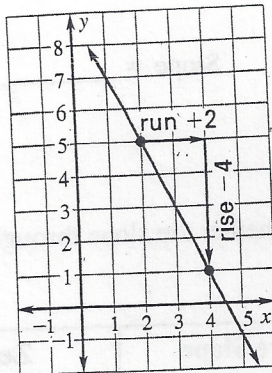


EXAMPLE 2

Find the slope of the line through the points (2, 5) and (4, 1).

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{1 - 5}{4 - 2} = \frac{-4}{2} = -2$$

Check by graphing:



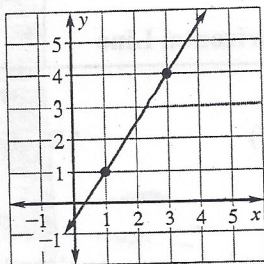
HINT

Rise is the change in y-coordinates.
Run is the change in x-coordinates.

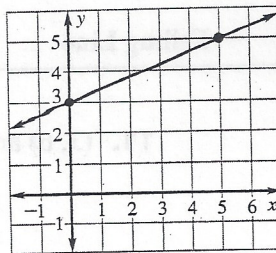
Practice: First Try

Find the slope of the line.

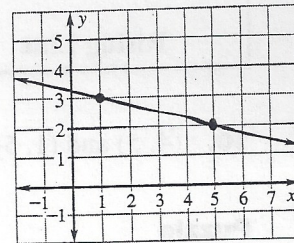
1. Slope = _____



2. Slope = _____



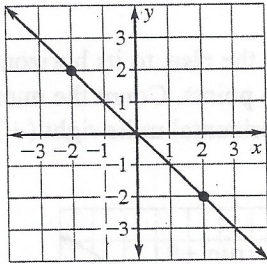
3. Slope = _____



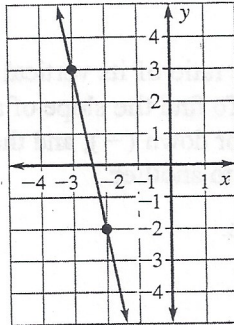
Practice: Second Try

Find the slope of the line.

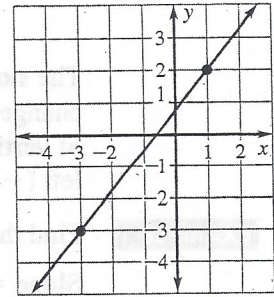
1. Slope = _____



2. Slope = _____



3. Slope = _____



6. ALGEBRA
2.1 Slope of a Line

Find the slope of the line through the given points.

4. (4, 4) and (1, 1)

Slope = _____

5. (3, 1) and (0, 0)

Slope = _____

6. (5, 5) and (2, 3)

Slope = _____

7. (1, 5) and (3, 4)

Slope = _____

8. (0, 6) and (3, 2)

Slope = _____

9. (-3, 2) and (0, 0)

Slope = _____

Extend Your Skills

With the help of the chart below, tell whether the slope through the given points is *positive*, *negative*, *zero*, or *undefined*.

Positive Slope	Negative Slope	Zero Slope	Undefined Slope
Rising Line	Falling Line	Horizontal Line	Vertical Line

10. (4, 5) and (1, 5)

11. (3, 6) and (3, -2)

12. (-1, 4) and (6, 2)

Puzzle

Line *A* has a slope of 3. Line *B* has a slope of -3. Which line has a steeper slope?
Explain your answer.