

**GUIDED PRACTICE** for Examples 1 and 2

1. **WHAT IF?** In Example 1, suppose that the rise of the ramp is changed to 12 inches without changing the run. What is the slope of the ramp?
2. What is the slope of the line passing through the points $(-4, 9)$ and $(-8, 3)$?

Ⓐ $-\frac{2}{3}$

Ⓑ $-\frac{1}{2}$

Ⓒ $\frac{2}{3}$

Ⓓ $\frac{3}{2}$

Find the slope of the line passing through the given points.

3. $(0, 3), (4, 8)$

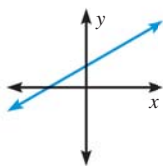
4. $(-5, 1), (5, -4)$

5. $(-3, -2), (6, 1)$

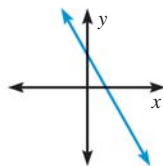
6. $(7, 3), (-1, 7)$

KEY CONCEPT*For Your Notebook***Classification of Lines by Slope**

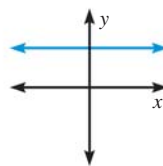
The slope of a line indicates whether the line rises from left to right, falls from left to right, is horizontal, or is vertical.



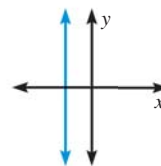
Positive slope
Rises from
left to right



Negative slope
Falls from
left to right



Zero slope
Horizontal



Undefined slope
Vertical

READING

A vertical line has “undefined slope” because for any two points, the slope formula’s denominator becomes 0, and division by 0 is undefined.

EXAMPLE 3**Classify lines using slope**Without graphing, tell whether the line through the given points *rises, falls, is horizontal, or is vertical*.

a. $(-5, 1), (3, 1)$

b. $(-6, 0), (2, -4)$

c. $(-1, 3), (5, 8)$

d. $(4, 6), (4, -1)$

Solution

a. $m = \frac{1 - 1}{3 - (-5)} = \frac{0}{8} = 0$

Because $m = 0$, the line is horizontal.

b. $m = \frac{-4 - 0}{2 - (-6)} = \frac{-4}{8} = -\frac{1}{2}$

Because $m < 0$, the line falls.

c. $m = \frac{8 - 3}{5 - (-1)} = \frac{5}{6}$

Because $m > 0$, the line rises.

d. $m = \frac{-1 - 6}{4 - 4} = \frac{-7}{0}$

Because m is undefined, the line is vertical.**GUIDED PRACTICE** for Example 3Without graphing, tell whether the line through the given points *rises, falls, is horizontal, or is vertical*.

7. $(-4, 3), (2, -6)$

8. $(7, 1), (7, -1)$

9. $(3, -2), (5, -2)$

10. $(5, 6), (1, -4)$