

The Slope of A Line: Is It All Uphill from Here?—Pre-Test

1. Define the following terms in your own words:

- a. Slope Is a measure of the steepness of a line determined by calculating the difference in the y-coordinates divided by the difference in the x-coordinates.
- b. Positive slope An increasing or rising line through the first and third quadrants of the coordinate system.
- c. Negative slope A decreasing or descending line through the second and fourth quadrants of the coordinate system.
- d. Parallel lines Two lines that never intersect and have the same slope.
- e. Perpendicular lines Two lines that intersect and form a right angle and have slopes that are negative reciprocals of each other.

2. Determine the slope of the line between the two points given. Describe what the slope means in two ways.

a. $(3,2)$ and $(-4,5)$

$$m = \frac{-3}{7}$$

Meaning, the y-value changes -3 units when x changes +7 units.

$$m = \frac{3}{-7}$$

Meaning, the y-value changes +3 units when x changes -7 units.

b. $(4,-1)$ and $(7,-1)$

$$m = \frac{0}{3} = 0$$

Meaning, the y-value changes 0 units when x changes +3 units.

$$m = \frac{0}{-3} = 0$$

Meaning, the y-value changes 0 units when x changes -3 units.

3. Identify the slope and y-intercept of each line given.

a. $f(x) = 3x$

Slope is 3
y-intercept is $(0, 0)$

b. $4x + 2y = 2$

Slope is -2
y-intercept is $(0, 1)$

4. Determine whether the two lines, $x - 2y = -6$ and $2x + y = 13$ are parallel, perpendicular, or neither.

Perpendicular

The Slope of A Line: Is It All Uphill from Here?—Post-Test

1. Define the following terms in your own words:

- a. Slope **Is a measure of the steepness of a line determined by calculating the difference in the y-coordinates divided by the difference in the x-coordinates.**
- b. Positive slope **An increasing or rising line through the first and third quadrants of the coordinate system.**
- c. Negative slope **A decreasing or descending line through the second and fourth quadrants of the coordinate system.**
- d. Parallel lines **Two lines that never intersect and have the same slope.**
- e. Perpendicular lines **Two lines that intersect and form a right angle and have slopes that are negative reciprocals of each other.**

2. Determine the slope of the line between the two points given. Describe what the slope means in two ways.

a. $(4,5)$ and $(-3,7)$

$$m = \frac{-2}{7}$$

Meaning, the y-value changes -2 units when x changes +7 units.

$$m = \frac{2}{-7}$$

Meaning, the y-value changes +2 units when x changes -7 units.

b. $(8,-5)$ and $(2,-5)$

$$m = \frac{0}{6} = 0$$

Meaning, the y-value changes 0 units when x changes +6 units.

$$m = \frac{0}{-6} = 0$$

Meaning, the y-value changes 0 units when x changes -6 units.

3. Identify the slope and y-intercept of each line given.

a. $f(x) = 5x$

Slope is 5
y-intercept is $(0, 0)$

b. $6x + 3y = 3$

Slope is -2
y-intercept is $(0, 1)$

4. Determine whether the two lines, $x - 3y = -12$ and $3x + y = 11$ are parallel, perpendicular, or neither.

Perpendicular