

3.3 The Slope of a Line - Day 3

Slope from points:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

where (x_1, y_1) is point 1
and (x_2, y_2) is point 2

Examples: Find the slope.

1. $(2, 5), (3, 6)$
 $(x_1, y_1) (x_2, y_2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{6 - 5}{3 - 2}$$

$$m = \frac{1}{1}$$

$$m = 1$$

2. $(4, 1), (-4, 1)$
 $(x_1, y_1) (x_2, y_2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - 1}{-4 - 4}$$

$$m = \frac{0}{-8}$$

$$m = 0$$

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3. $(4, 1), (-6, -4)$
 $(x_1, y_1) (x_2, y_2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{-4 - 1}{-6 - 4}$$

$$m = \frac{-5}{-10}$$

$$m = \frac{1}{2}$$

4. $(3, 2), (3, -2)$
 $(x_1, y_1) (x_2, y_2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{-2 - 2}{3 - 3}$$

$$m = \frac{-4}{0}$$

$$m = \text{undefined}$$

$$m = \text{no slope}$$

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Find the value for x or y for the given points and given slope.

5. $(x, 9)$ and $(0, 6)$
slope = $-\frac{1}{3}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$-\frac{1}{3} = \frac{6 - 9}{0 - x}$$

$$\frac{1}{3} = \frac{3}{x}$$

$$-1(-x) = -3(3)$$

$$x = -9$$

6. $(1, -4)$ and $(8, y)$
slope = $\frac{6}{7}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{6}{7} = \frac{y - (-4)}{8 - 1}$$

$$\frac{6}{7} = \frac{y + 4}{7}$$

$$7(y + 4) = 6(7)$$

$$7y + 28 = 42$$

$$7y + 28 = 42$$

$$7y = 42 - 28$$

$$7y = 14$$

$$y = \frac{14}{7}$$

$$y = 2$$

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