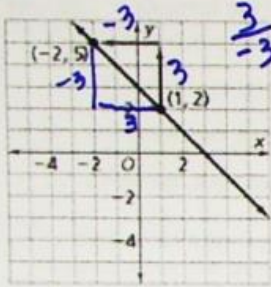


Unit 3 Notes: "Finding Slope Given Two Points"

Finding Slope Given Two Points

What is the slope of this line?

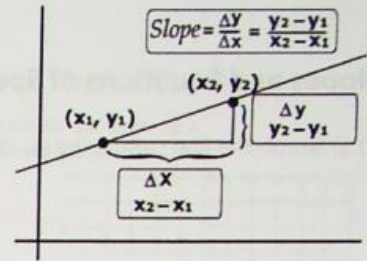


We can find the slope of a line through two points without graphing them, using a formula.

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

diff y's / *diff x's*

Together, let's use the formula to find the slope of the line that contains (-2, 5) and (1, 2).
 x_1, y_1 and x_2, y_2



Examples: 1) Find the slope of the line that contains the points (-5, 2) and (7, 4).

$$\frac{\text{change in } y}{\text{change in } x} = \frac{\text{2nd } y\text{-coordinate} - \text{1st } y\text{-coordinate}}{\text{2nd } x\text{-coordinate} - \text{1st } x\text{-coordinate}}$$

Note that order is important.

$$= \frac{4 - 2}{7 - (-5)} = \frac{\Delta y}{\Delta x} = \frac{2 - 5}{1 - (-2)} = \frac{2 + (-5)}{1 + 2} = \frac{-3}{3} = \boxed{-1}$$

2) Find the slope of the line that passes through (3, 5) and (-1, 4).

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 5}{-1 - 3} = \frac{4 + (-5)}{-1 + (-3)} = \frac{-1}{-4} = \boxed{\frac{1}{4}}$$

Find the slope of the line that contains each pair of points. Show all work using the slope formula.

1) K(3, 9), L(2, 4)
 x_1, y_1, x_2, y_2

$$\frac{y_1 - y_2}{x_1 - x_2} = \frac{9 - 4}{3 - 2} = \frac{5}{1} = 5$$

2) A(1, 0), B(-3, 1)

3) M(8, -6), N(8, 4)

undefined!!!

$$\frac{y - y}{x - x} = \frac{4 - (-6)}{8 - 8} = \frac{4 + 6}{0} = \frac{10 \text{ rise}}{0 \text{ run}}$$

4) S(1, -5), T(-3, -4)

5) W(1, 6), Z(2, 6)

6) P(-4, -5), Q(-3, 7)