

Slope

10/2

Different Names for Slope:

- Constant Rate of Change

* Average Rate of Change - *Used in tables*

- letter for Slope is m

Oct 3-7:53 AM

Find Slope from:

1. Graph

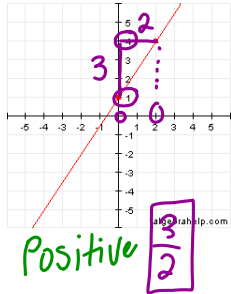
2. table - A list of ordered pairs

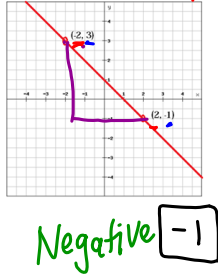
*3. 2-points - Formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

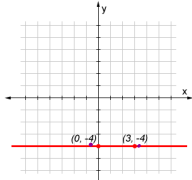
Oct 5-8:29 AM

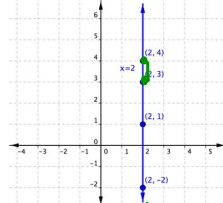
How to Find Slope: - From a Graph

Rise \updownarrow (y-axis)
Run \leftrightarrow (x-axis)

a)  **Positive** $\frac{3}{2}$

b)  **Negative** -1

c)  **Zero slope**
 $-4 - (-4) = 0$
 $3 - 0 = 3$

d)  **undefined** **NO slope**
 $4 - 3 = 1$
 $2 - 2 = 0$

Oct 3-7:59 AM

From a table

$$\frac{\Delta y}{\Delta x} = \frac{\text{Change in } y}{\text{Change in } x}$$

X	Y
-1	0
1	3
3	6
5	9

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

x	Y
2	1
4	2
6	3
10	5

$m = \frac{3}{6} = \frac{1}{2}$

Oct 3-8:05 AM

★ From 2-points

ordered Pairs (x,y)

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

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

$$\frac{6 - 3}{-1 - 2} = \frac{3}{-3} = -1$$

② $(-1, 0)$ $(3, 6)$
 (x, y) (x, y)

$$\begin{aligned} 6 - 0 &= 6 \div 2 = 3 \\ 3 - (-1) &= 4 \div 2 = 2 \end{aligned} \quad \begin{array}{|c|} \hline 3 \\ \hline 2 \\ \hline \end{array}$$

Oct 3-8:11 AM

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

$$\frac{4 - 4}{2 - 4} = \frac{0}{-2}$$

Zero Slope



[Y's stay the same]

④ $(4, 4)$ $(4, 2)$
 (x_1, y_1) (x_2, y_2)

$$\frac{2 - 4}{4 - 4} = \frac{-2}{0}$$

No Slope
undefined



[X's stay the same]

Oct 3-8:16 AM

Find the average rate of change
between 2 and 7.

x	y
1	-2
2	-1
4	1
5	2
7	4
8	5

A purple bracket on the left side of the table spans from the row where x=2 to the row where x=7, with the label "+5" next to it. A purple bracket on the right side of the table spans from the row where y=-1 to the row where y=4, with the label "+5" next to it.

$$m = \frac{5}{5} = 1$$

Oct 3-8:19 AM