

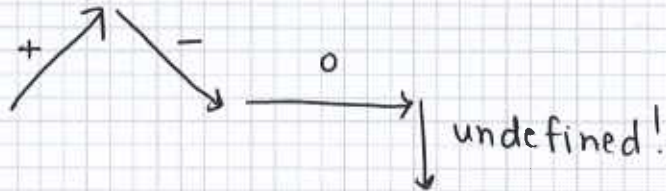
Slope of Line

November 07-17 3:12 PM

The slope tells you how steep the line is.

↳ The sign (+ or -) tells you the direction:

(from slope dude)



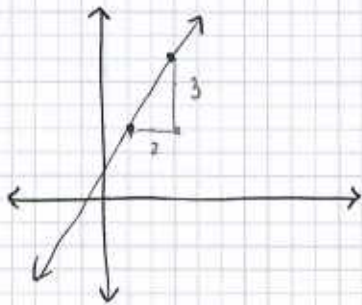
$$\text{Slope} = \frac{\Delta y}{\Delta x}$$

change in
y-values

change in
x-values

$$\text{Slope} = \frac{\text{Rise}}{\text{Run}}$$

Ex. sketch a triangle to determine the rise and run then calculate the slope.



Rise = 3
Run = 2

$$m = \frac{\text{Rise}}{\text{Run}}$$

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

* slope is often reported in fractions.

You can also calculate slope using this formula:

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

for any 2 points (x_1, y_1)
 (x_2, y_2)

Ex. Find the slope of a line segment with endpoints at $A(-3, 6)$ and $B(5, 2)$.

* Label the ordered pairs!

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

$$m = \frac{x_2 - x_1}{y_2 - y_1} = \frac{2 - 6}{5 - (-3)}$$

reduce

$$m = \frac{-4}{8} \rightarrow m = \frac{-1}{2} \text{ OR } -\frac{1}{2}$$

Ex. Find the slope between: $H(4, 3)$ and $K(4, 8)$
(same x-value)

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

$$m = \frac{8 - 3}{4 - 4}$$

$$m = \frac{5}{0}$$

calc might say "error"

slope is undefined.

Ex. A line segment has a slope of $-\frac{3}{8}$ and a rise of 9. What is the run?

$$m = \frac{\text{Rise}}{\text{Run}}$$

$$-\frac{3}{8} = \frac{9}{\text{Run}}$$

$$8 \times 9 \div -3 = -24$$

$$\text{Run} = -24$$

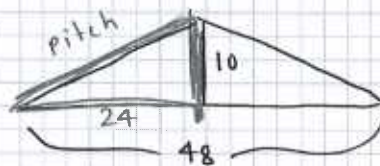
Ex. A roof truss spans 48 ft. The height @ the centre is 10 ft. What is the pitch of the roof?

(pitch = slope)

$$m = \frac{\text{Rise}}{\text{Run}}$$

$$m = \frac{10}{24}$$

$$m = \frac{5}{12}$$



$$48 \div 2 = 24$$