

1A-BE | Wednesday 1-13-10

SOLVE:

$$\textcircled{1} \quad -3(x+2) = 8$$

$$\textcircled{2} \quad \frac{5}{12} = \frac{x}{8}$$

$$\textcircled{3} \quad 7x + 4 = 2x - 9$$

Simplify:

$$\textcircled{4} \quad 3 + \frac{4}{7}$$

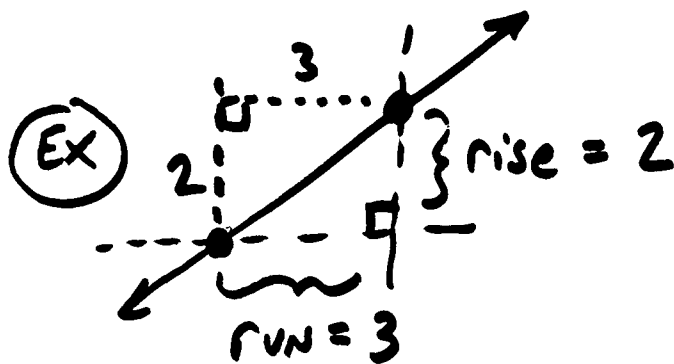
$$\textcircled{5} \quad 6 - (-8) \div 2 + 3 + 1$$

BASIC Property of Any line:

Slope A number that measures how "STEEP" a line is, it is the ratio of RISE over RUN.

$$\frac{\text{RISE}}{\text{RUN}} = \text{SLOPE} = m$$

⚡
use m in the US for slope, historical reasons.

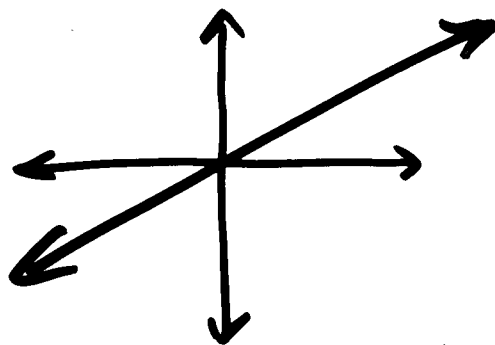


$$\text{SLOPE} = \frac{2}{3} = m$$

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

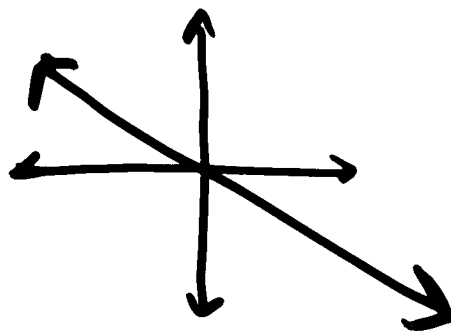
- use ANY TWO POINTS ON THE LINE
- draw horizontal or vertical line
↔ ↑
through one point and the other kind through the second to get "slope triangle"
- measure Rise and run to get m

Basic Slope Values:



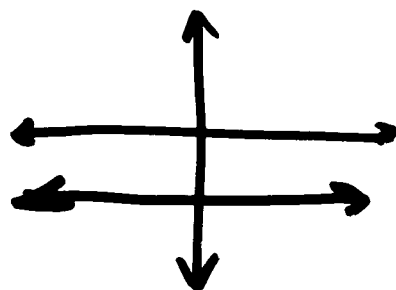
POSITIVE
SLOPE

(EX) $m = 2$ or $\frac{2}{1}$



NEGATIVE SLOPE

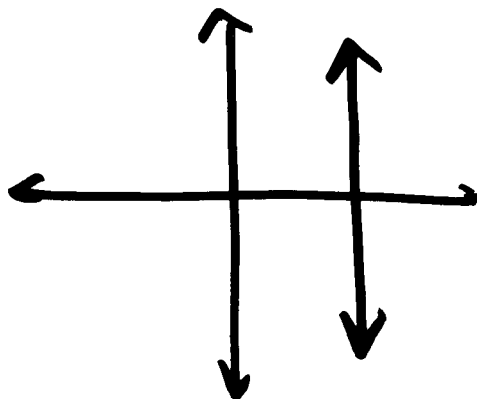
(EX) $m = -2$ or $-\frac{2}{1}$



0 = SLOPE

$$\frac{\text{rise}}{\text{run}} = \frac{0}{\text{run}} = 0$$

DIVISION
BY
ZERO
IS
UNDEFINED

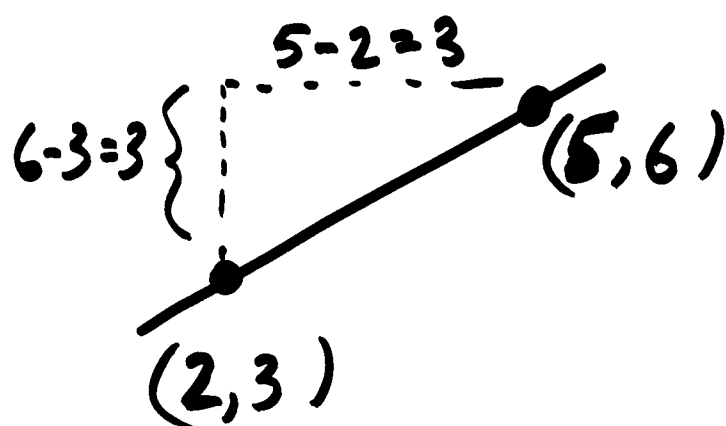


UNDEFINED = SLOPE

$\frac{\text{rise}}{\text{run}}$
"0"
⊘

If you know the (x, y) values for 2 points, you can find its slope using a formula.

Since y is $\updownarrow$, the "change" in y values of any 2 points is the rise



$$m = \frac{3}{3} = 1 = \frac{\text{rise}}{\text{run}}$$

Since x is $\leftrightarrow$, the "change" in x values of any two points is the RUN

You can call any two points

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

And

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

4

How to find slope:

Ⓔ Find slope of line through $(1, 4)$ and $(3, 5)$

$(1, 4), (3, 5)$
↑ $y_2 - y_1$
↑ $x_2 - x_1$

$$m = \frac{5-4}{3-1} = \boxed{\frac{1}{2} = m}$$



Ⓔ Find slope of line through $(3, -2)$, $(5, -6)$

$(3, -2), (5, -6)$

$$\frac{-6 - (-2)}{5-3} = \frac{-4}{2} = \boxed{-2 = m}$$



Remember: $\frac{0}{\text{ANYTHING}} = 0 = m = \text{horizontal LINE}$

$$\frac{\text{ANYTHING}}{0} = \text{UNDEFINED} = \text{VERTICAL LINE}$$

Your turn: find m

Ex $(-1, 2), (3, 4)$

Ex $(-1, -2), (-4, 1)$

$\textcircled{x_3} \quad (1, 2), (-1, 2)$

Ex $(1, -2), (1, 3)$

↑ These are ex 1 to 4 on Pg 257

- Homework: • Read Ch 5-1
- Pg 259 # 1 to 10.