Slope From 2 Points Notes

Name: Ben Wilson

Period: 7

Determine the slope of the line passing through the given points.

OYO:) $(5,5)$ & $(-5,-3)$

$x_1\ y_1\quad x_2\ y_2$

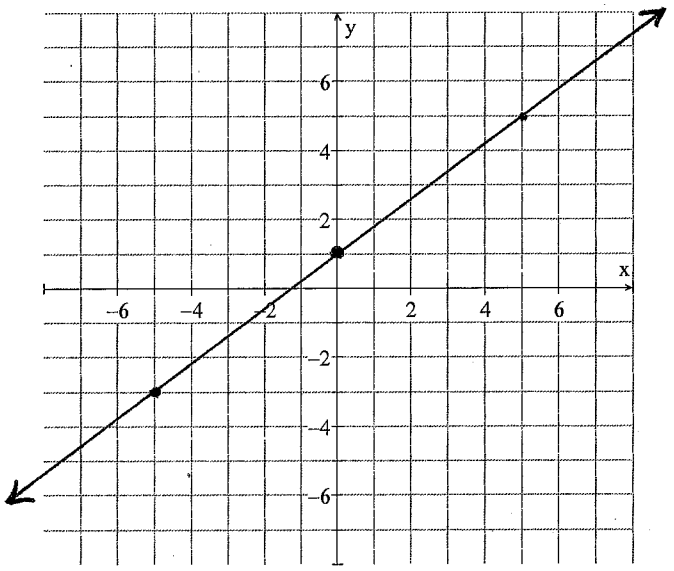
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{(-3) - (5)}{(-5) - (5)}$$

$$m = \frac{-8}{-10}$$

$$m = \frac{8}{10}$$

$$\boxed{m = \frac{4}{5}}$$



$m = \frac{4}{5}$

But what happens when the two points that you're being given are:

Really far away from each other? OR Numbers that are not as easy to work with?

$(-40, 29)$ & $(24, 45)$

$x_1\ y_1\quad x_2\ y_2$

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

$$m = \frac{(45) - (29)}{(24) + (+40)}$$

$$m = \frac{16}{64}$$

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

16 → 8 (2) → 4 (2) → (2)(2)

64 → 32 (2) → 16 (2) → 8 (2) → 4 (2) → (2)(2)

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

$\left(1\frac{1}{2}, -\frac{1}{2}\right)$ & $\left(-4\frac{1}{2}, -2\frac{1}{2}\right)$

$x_1\ y_1\quad x_2\ y_2$

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

$$m = \frac{(-2\frac{1}{2}) + (+\frac{1}{2})}{(-4\frac{1}{2}) - (1\frac{1}{2})}$$

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

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

6 → (2)(3)

$$m = \frac{\cancel{2}^{1}}{\cancel{2} \cdot 3}$$

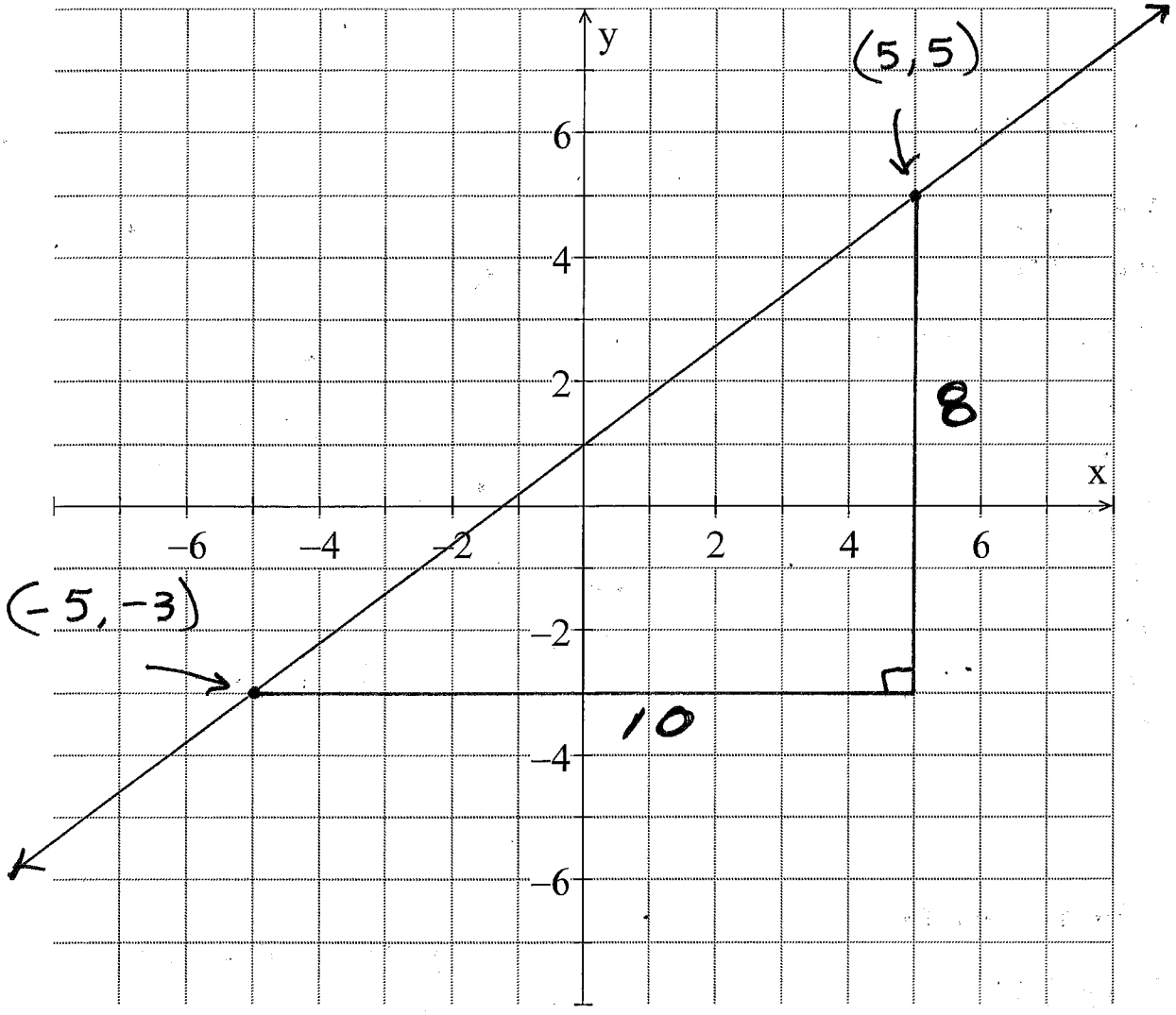
$$\boxed{m = \frac{1}{3}}$$

We ~~need~~ a better method

HAVE

Why the method works:

(5, 5) & (−5, −3)



Vertical Distance → VERTICAL DIFFERENCE:

"BY HOW MUCH ARE THESE # DIFFERENT?" → SUBTRACT THEM TO FIND OUT

Horizontal Distance → HORIZONTAL DIFFERENCE:

RISE = 5 + (+3)

RISE = 8

RUN = 5 + (+5)

RUN = 10

Slope Formula:

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

$$\text{SLOPE} = \frac{8}{10}$$

8 → 4, 2 → 2, 2

10 → 5, 2

$$\frac{2 \cdot 2 \cdot 2}{2 \cdot 5}$$

$$\boxed{\text{SLOPE} = \frac{4}{5}}$$

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