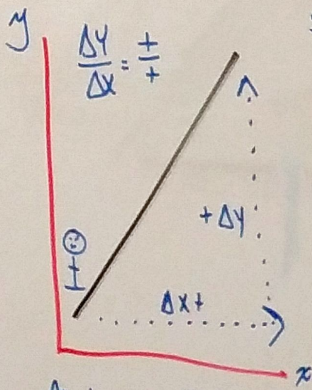


functions fact sheet
 Linear Equations foldable
 Slope Notes

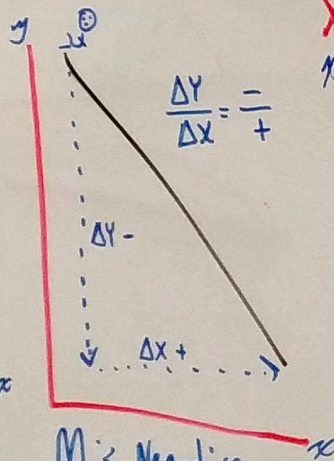
Slope - steepness of a line + / - / 0 / NO

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

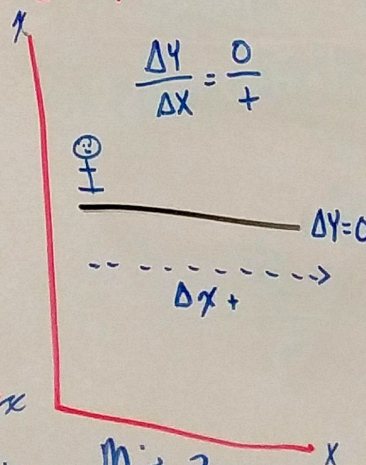
Graph



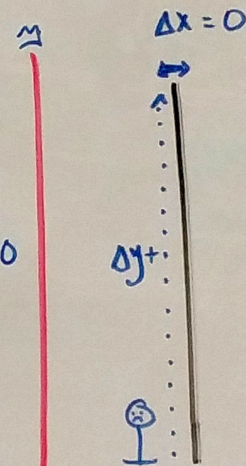
M is positive
 "direct Relationship"
 y ↑ as x ↑



M is Negative
 "Inverse Relationship"
 as y ↓ x ↑



"M is Zero
 Zero Effort"
 as x ↑ y =



M is "No Slope"
 "No way"
 as y + x =

$$\frac{\Delta y}{\Delta x} = \frac{+}{0}$$

Table

x	y
1	20
2	40
3	60
4	80

+1 (x) → +20 (y)
+1 (x) → +20 (y)
+1 (x) → +20 (y)

$$\frac{\Delta y}{\Delta x} = \frac{20}{1}$$

$m = 20$

x	y
5	20
7	15
9	10
11	5

+2 (x) → -5 (y)
+2 (x) → -5 (y)
+2 (x) → -5 (y)

$$\frac{\Delta y}{\Delta x} = \frac{-5}{2}$$

$m = -5/2$

x	y
8	9
3	4
4	12
9	20

-5 (x) → -5 (y)
+1 (x) → +8 (y)
+5 (x) → +8 (y)

↑
Not Constant
↑
Not Linear

Points

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

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

$$\bullet \begin{matrix} (5, 2) & (3, 4) \\ x_1 & y_1 & x_2 & y_2 \end{matrix} = \frac{4-2}{3-5} = \frac{2}{-2} = \boxed{-1 = m}$$

$$\bullet \begin{matrix} (-4, 6) & (5, -3) \\ x_1 & y_1 & x_2 & y_2 \end{matrix} \quad \frac{-3-6}{5--4} = \frac{-9}{9} = \boxed{-1 = m}$$

Equation

$$y = mx + b$$

↪ slope: coefficient of x term

$$y = \boxed{3}x + 5 \quad m=3$$

$$y = \boxed{-2}x - 7 \quad m=-2$$

$$y = \boxed{-\frac{2}{3}}x + 5 \quad m=-\frac{2}{3}$$

$$2x + 6y = 15 \quad \leftarrow \text{Not Solved for } y$$

$-2x$

$$\frac{6y}{6} = \frac{-2x + 15}{6}$$

$$y = \boxed{-\frac{1}{3}}x + \frac{15}{6}$$

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