Slopes

→ Desmos

Positive Slope ⇒ Up and Right

Negative Slope ⇒ Down and Right

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

Ex: Given pts $(2,3)$, $(5,9)$ on a line what would be the Slope?

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $\quad \underset{x_1\ y_1}{(2,3)}$ $\quad \underset{x_2\ y_2}{(5,9)}$

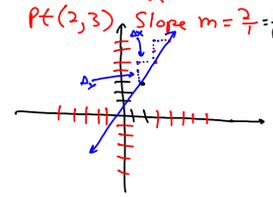
$m = \frac{9-3}{5-2} = \frac{6}{3} = 2$

What does $m=2$ mean

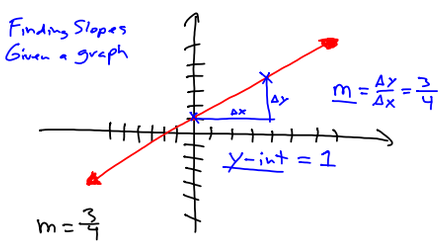
$\frac{2}{1}$ ← change in y-direction

Change in x-direction

Pt $(2,3)$ Slope $m = \frac{2}{1} = \frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x}$



Finding Slopes Given a graph



$m = \frac{\Delta y}{\Delta x} = \frac{3}{4}$

y-int = 1

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

y-int = 1 = b

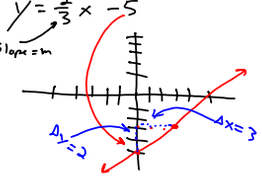
Slope Intercept ⇒ $y = mx + b$

$\boxed{y = \frac{3}{4}x + 1}$

Graphing lines given in Slope Intercept Form

Ex: $y = \frac{2}{3}x - 5$ ← y-int

Slope = m



Convert to $y = mx + b$ (Slope int Form)

Ex: $3x + 4y = 10$

Solve for y

$-3x \qquad -3x$

$\frac{4y}{4} = \frac{-3x}{4} + \frac{10}{4}$

$y = -\frac{3}{4}x + \frac{10}{4}$

$y = -\frac{3}{4}x + \frac{5}{2}$

Slope ↑ ↑ y-int