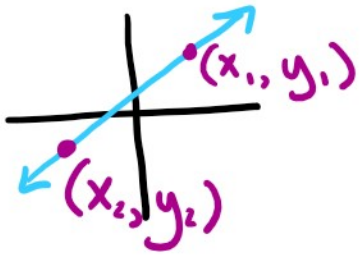
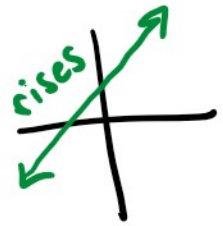
2.1 Notes

Wednesday, June 19, 2019 8:45 AM

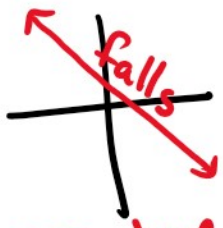
$$\text{slope} = m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

↑ equation ↑ graph ↑ two points



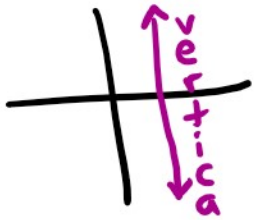


positive slope



negative slope

zero slope



undefined slope

$\frac{0}{\text{LOTS}}$ ← $\frac{\text{rise}}{\text{run}}$ → $\frac{\text{LOTS}}{0}$

- parallel lines have the <u>same</u> slope
- perpendicular lines have ① opposite and ② reciprocal slopes

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

② flip #

① flip sign

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

ex Find the slope . . .

. . . of the line that connects the points $(\overset{x_1}{-5}, \overset{y_1}{12})$ and $(\overset{x_2}{9}, \overset{y_2}{-4})$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 12}{9 - (-5)}$$

. . . of the equation $5x - 2y = 13$.

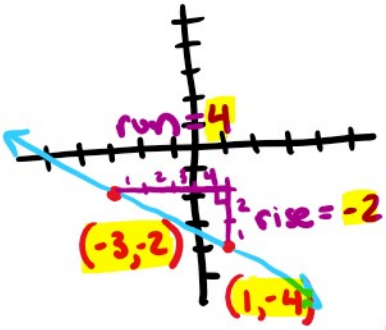
(solve for y)

$5x - 2y = 13$

$-5x \quad\quad -5x$

$-2y = 13 - 5x$

. . . of the line.



rise -2

$m = \frac{\quad}{x_2 - x_1} = \frac{9-(-5)}{\quad} = \frac{-16}{14} = \boxed{\frac{-8}{7}}$

$-2y = 13 - 5x$

$\frac{-2y}{-2} = \frac{13}{-2} - \frac{5x}{-2}$

$y = \frac{5}{2}x - \frac{13}{2}$

$\boxed{m = \frac{5}{2}}$

(1, -4)

slope $= \frac{\text{rise}}{\text{run}} = \frac{-2}{4} = \boxed{\frac{-1}{2}}$