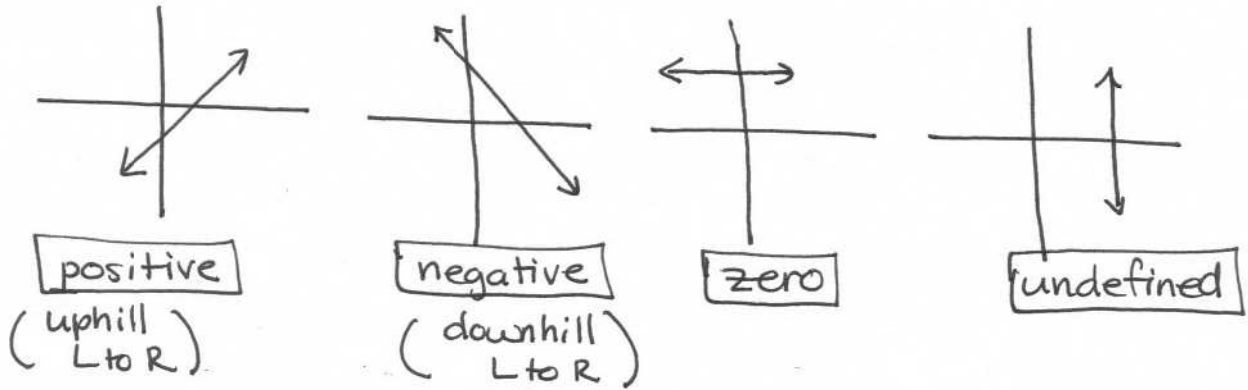


Slopes of Lines

Slope (m) = describes the steepness of a line



Given 2 points (x_1, y_1) (x_2, y_2)

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

Δ = greek delta
 \Rightarrow change in

Stacking the points vertically sometimes helps.

Example

$(2, 9)$
 $(-6, 4)$

Find the slope of the line that contains the points $(-6, 4)$ and $(2, 9)$.

$$m = \frac{9-4}{2-(-6)} = \frac{5}{8}$$

* either point can be designated (x_1, y_1)

Slope given an equation of a line

you must write the equation in

slope-intercept form	$y = mx + b$
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$m = \text{slope}$
 $b = \text{y-intercept}$
 $\Rightarrow (0, b)$
is a point

procedure: solve the equation for y

Example

Find the slope of the line
 $5x - 2y = 13.$

solve for y :

$$-2y = -5x + 13$$

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

$$y = \left(\frac{5}{2}\right)x - \frac{13}{2}$$

$$y = \textcircled{m}x + b$$

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

$$b = -\frac{13}{2}$$

$$\Rightarrow \left(0, -\frac{13}{2}\right)$$

is a point
on the line

(specifically
its y-intercept)