

Section 2.3 - Lines!

• Slopes \rightarrow What are they?

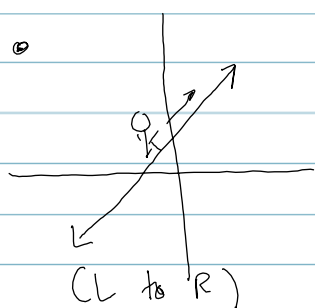
\leftarrow Describes a steepness of a line

$$\frac{\Delta y}{\Delta x} \rightarrow \frac{\text{Change in } y}{\text{Change in } x} \rightarrow \frac{\text{rise}}{\text{run}}$$

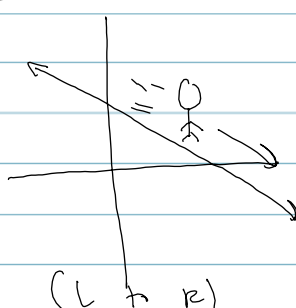
$$- m [\text{slope}] = \frac{y_2 - y_1}{x_2 - x_1}$$

- Solve for y in the equation of a line

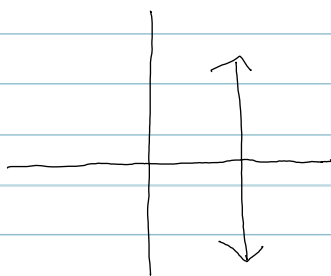
$$y = (m)x + b$$



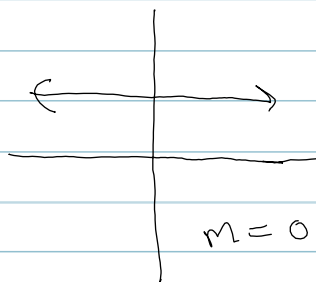
Uphill



Downhill



$m = \text{undefined}$,
or slopes of
vertical lines



$m = 0$

Starting form

\leftarrow Point-slope form

$$y - y_1 = m(x - x_1)$$

$$\star m = \frac{y - y_1}{x - x_1}$$

Answer forms

\leftarrow Slope-intercept form

$$y = mx + b$$

(Solve P.S. form for y)

\leftarrow Standard form

$$ax + by = C$$

• Get all x 's and y 's on same side.

• A MUST be a positive, non-fractional value.

Parallel & Perpendicular Lines

Parallel Lines → SAME slope
↳ (||)

Perpendicular Lines

↳ (⊥) → Opposite Reciprocal Slope
↳ $(\frac{3}{2}) \perp (-\frac{2}{3})$

* Horizontal and Vertical Lines



$m = 0 \Rightarrow y = C$, where C is some number
↳ On a line, all y values are the same number!



$m = \infty$ $x = C$, where C is some number.
↳ On a line, all x values are the same number!