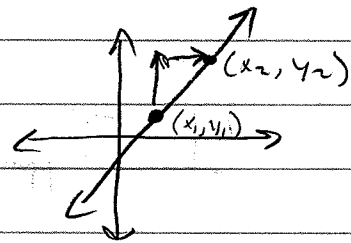


4.4 Slope & Rate of Change

* Finding change vertically & horizontally

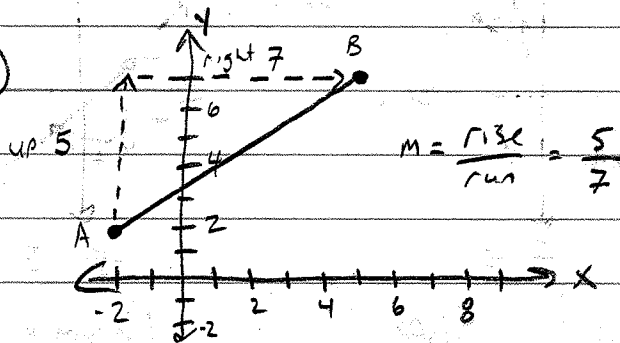
$$\begin{aligned}\text{Slope } (m) &= \frac{\text{Change in } y \text{ (rise)}}{\text{Change in } x \text{ (run)}} \\ &= \frac{y_1 - y_2}{x_1 - x_2}\end{aligned}$$



Find slope for A(-2, 2) & B(5, 7)

$$m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{2 - 7}{-2 - 5}$$

$$= \frac{-5}{-7} = \left(\frac{5}{7}\right)$$



* $m = -\frac{1}{3}$ can be $-\frac{1}{3} \begin{matrix} \downarrow 1 \\ \rightarrow 3 \end{matrix}$ or $\frac{1}{-3} \begin{matrix} \uparrow 1 \\ \leftarrow 3 \end{matrix}$

Find Rate of Change

Miller goes to an Internet Cafe and pays

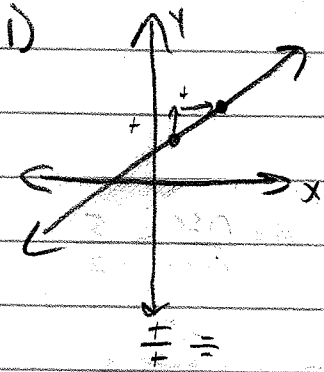
Time (hr)	2	4	6
Cost (\$)	7	14	21

Find the rate of cost per hour.

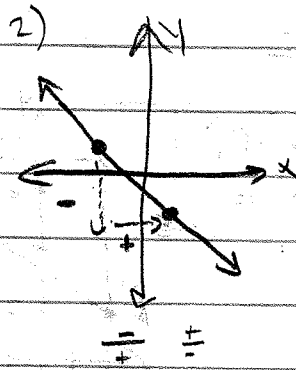
$$\frac{21-7}{6-2} = \frac{14}{4} = 3.5 \quad \left\} \quad \frac{14-7}{4-2} = \frac{7}{2} = 3.5$$

\$3.50 per hour

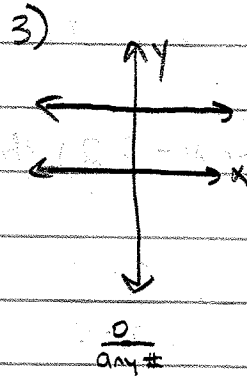
4 Types of Slope



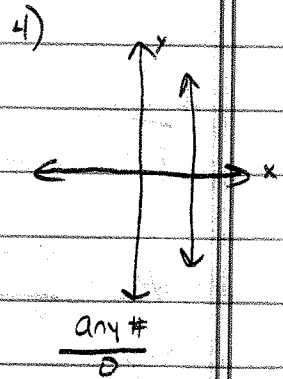
Positive Slope



Negative Slope



0 Slope
(Horizontal
Line)



Undefined Slope
(Vertical
Line)

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