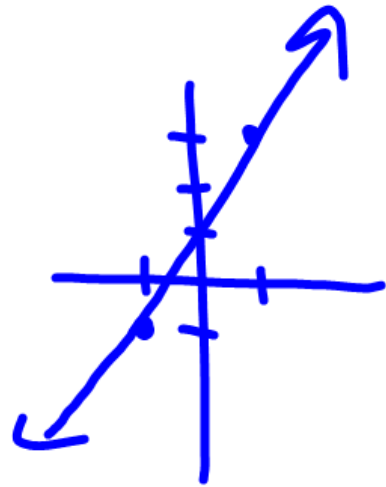


Warm-up

Graph one.

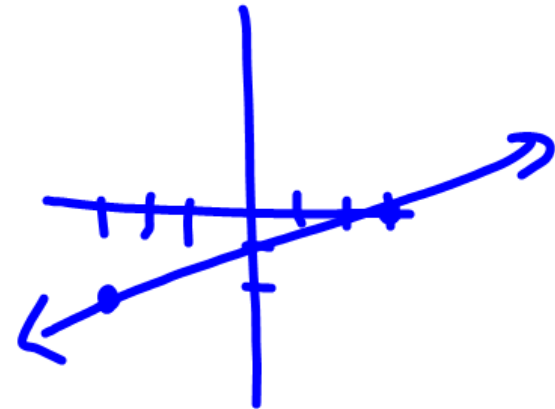
1) $y = -2x + 1$ for $x = -1, 1$

x	y
-1	-1
1	3



2) $y = \frac{1}{3}x - 1$ for $x = -3, 3$

x	y
-3	-2
3	0

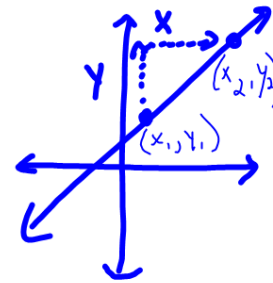


4.4 Slope & Rate of Change

Miles per hour ($\frac{\text{mils}}{\text{hr}}$) Miles per gallon ($\frac{\text{Miles}}{\text{gal}}$)

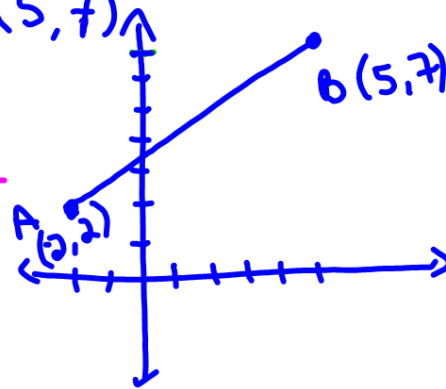
\$ per hour/week ($\frac{\$}{\text{hr}}$) Hours per day ($\frac{\text{hr}}{\text{day}}$)

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



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

$$\begin{aligned} m &= \frac{y_1 - y_2}{x_1 - x_2} = \frac{2 - 7}{-2 - 5} = \frac{-5}{-7} \\ &\text{or } \frac{7 - 2}{5 - (-2)} = \frac{5}{7} \end{aligned}$$



Find the rate of change in cost per hour

Miller goes to an Internet Cafe & pays

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

1st - Find slope

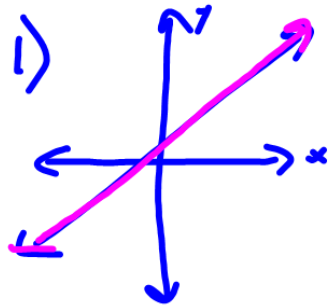
$(2, 7)$ & $(6, 21)$

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

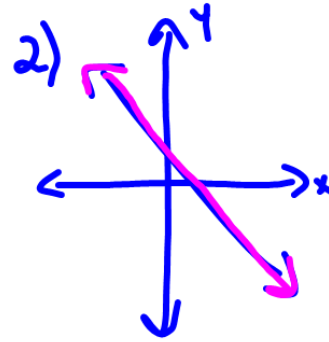
2nd - Add units

→ ^{or} 3.50 per hr

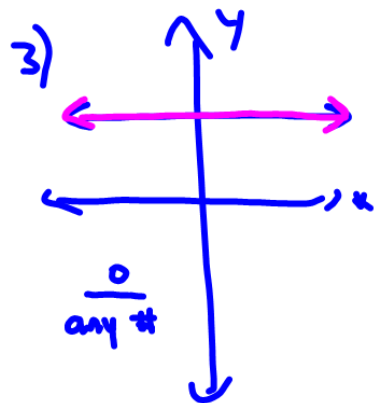
4 Types of Slope



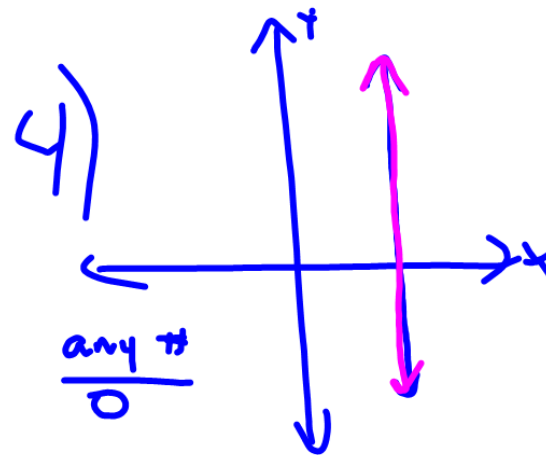
Positive Slope



Negative Slope



0 Slope
(Horizontal Line)



Undefined Slope
(Vertical Line)