

Jan 3<sup>rd</sup>

## 6-1 Rate of Change

$$y = mx + b \quad (\text{slope})$$

slope

$$\textcircled{1} \text{ slope } (m) = \frac{\text{rise}}{\text{run}}$$

(graphing)

$$\textcircled{2} \text{ slope } (m) = \frac{\text{vertical change}}{\text{horizontal change}}$$

(real world)

$$\textcircled{3} \text{ slope formula } (m) = \frac{y_2 - y_1}{x_2 - x_1}$$

(ordered pairs)

$$(3, 4) + (5, 6)$$

$$x_1 \quad y_1 \quad x_2 \quad y_2$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 4}{5 - 3} = \frac{2}{2} = 1 \text{ slope}$$

$$(-2, -6) + (1, 6)$$

$$x_1 \quad y_1 \quad x_2 \quad y_2$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-6)}{1 - (-2)} = \frac{6+6}{1+2} = \frac{12}{3} = 4$$

OR

$$\frac{-6 - 6}{-2 - 1} = \frac{-12}{-3} = 4$$

same  
slope  
no matter  
which  
ordered  
pair is  
listed

$$(-8, 4) + (-6, 2)$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 4}{-6 - (-8)} = \frac{-2}{-6+8} = \frac{-2}{2} = -1$$

first  
slope

<u># of days</u>	<u>Rental charge</u>
1	\$60
2	\$75
3	\$90
4	\$105
5	\$120

$(1, 60) + (5, 120)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{120 - 60}{5 - 1} = \frac{60}{4} = \frac{15}{1} = 15$$

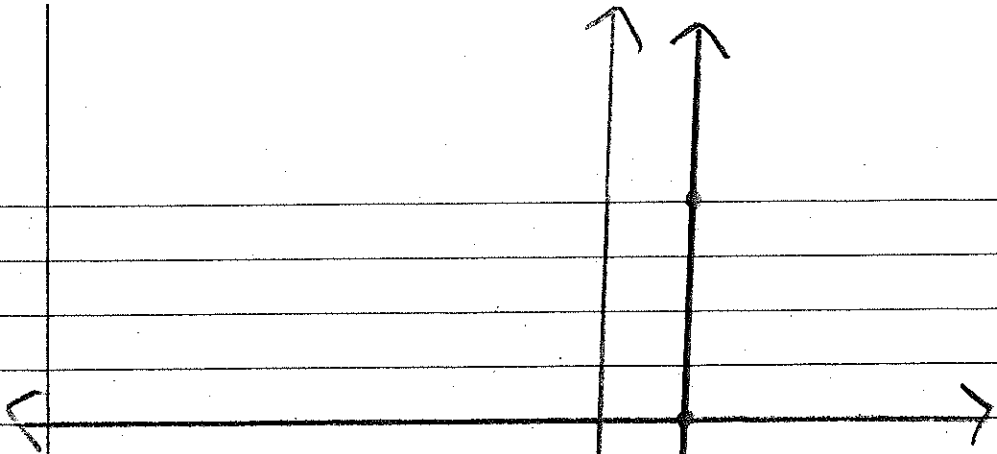
slope

what does the 15 mean according to this situation?

$$\frac{\text{vertical change}}{\text{horizontal change}} = \frac{\text{money}}{\# \text{ of days}} = \frac{15}{1}$$

for every day that goes by my rental charge increases by \$15.00

For every \$15 my rental charge goes up 1 increase the days by one.

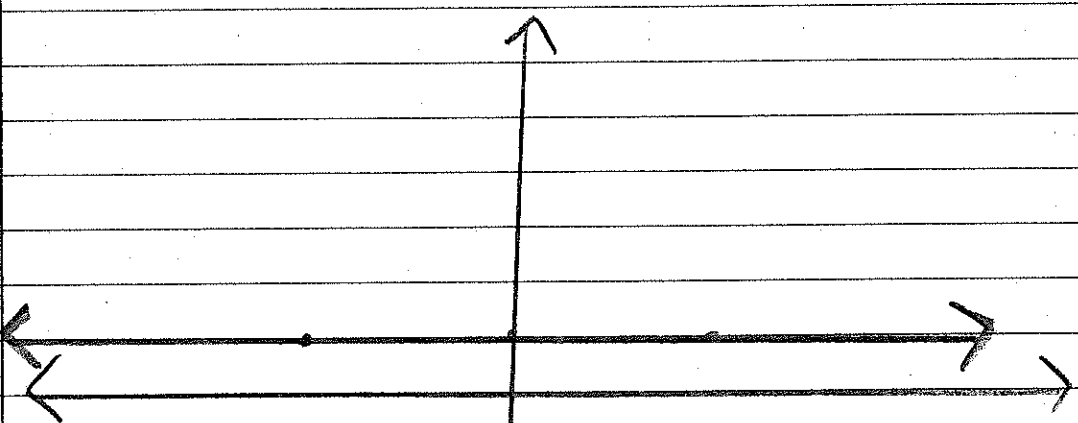


slope formula =  $\frac{8}{0} = \text{error}$

\*there is NO run\*

Slope is Undefined

Vertical Line



\*there is NO rise\*

slope formula =  $\frac{0}{5} = 0$   
Slope is zero

Horizontal Line