

### Slope Formula

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x}$$

← vertical change
← horizontal change

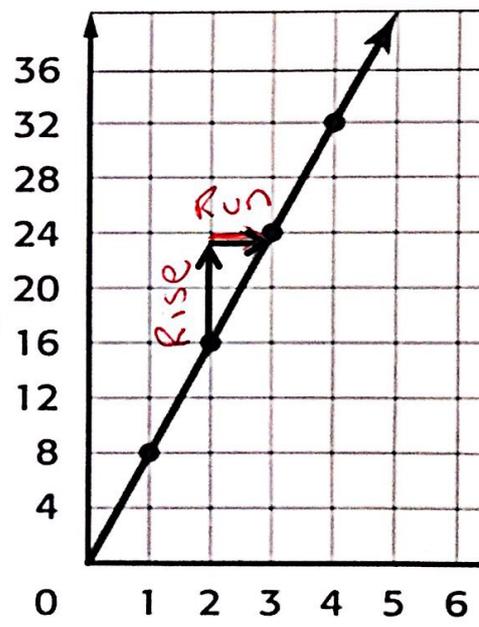


You can also say that

$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

- Count the number of units that make up the RISE of the line. Write this number for the NUMERATOR of the fraction below.
- Count the number of units that make up the RUN of the line. Write this number for the DENOMINATOR of the fraction below.

$$\frac{\text{rise}}{\text{run}} = \frac{8}{1} \quad \text{So, the slope of the line is } \frac{8}{1}$$



**DIRECTIONS:** Graph the data. Then find the slope of the line. Explain what the slope represents.

- The table shows the number of juice bottles per case.

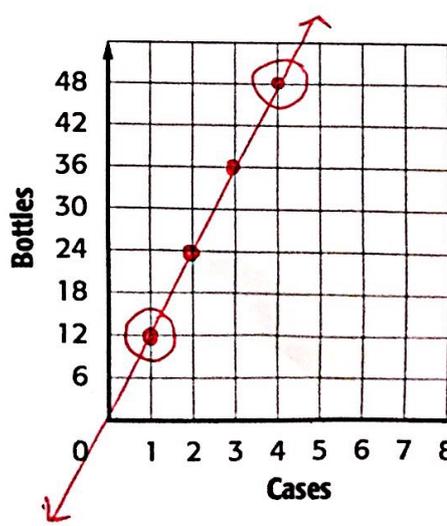
Cases	1	2	3	4
Juice Bottles	12	24	36	48

Pick 2 points:  $(1, 12)$   $(4, 48)$   
↓   ↓   ↓   ↓  
 $x_1, y_1$     $x_2, y_2$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{48 - 12}{4 - 1} = \frac{36}{3} = 12$$

12 juice bottles per case

The slope represents the amount of juice bottles per case.



# Examples

**DIRECTIONS:** Graph the data. Then find the slope of the line. Explain what the slope represents.

1. At 6 A.M., the retention pond had 28 inches of water in it. The water receded so that at 10 A.M. there were 16 inches of water left.

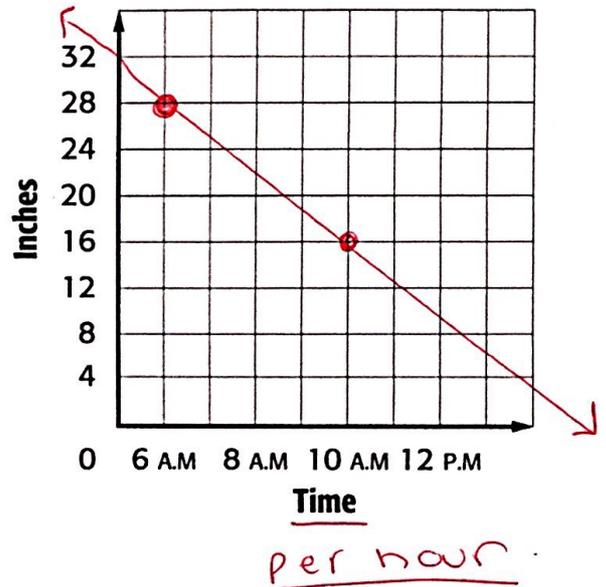
6 am = 28 in

10 am = 16 in

$(6, 28)$     $(10, 16)$   
 $x_1, y_1$     $x_2, y_2$

slope =  $\frac{y_2 - y_1}{x_2 - x_1} = \frac{16 - 28}{10 - 6}$

$= \frac{-12}{4} = \boxed{-3}$



The water went down -3 inches per hour.

2.

Hours	1	2	3	4
Wages (\$)	11	22	33	44

$(1, 11)$     $(4, 44)$   
 $x_1, y_1$     $x_2, y_2$

slope =  $\frac{y_2 - y_1}{x_2 - x_1} = \frac{44 - 11}{4 - 1}$

$= \frac{33}{3} = 11$

\$11 per hour

