


Name: \_\_\_\_\_

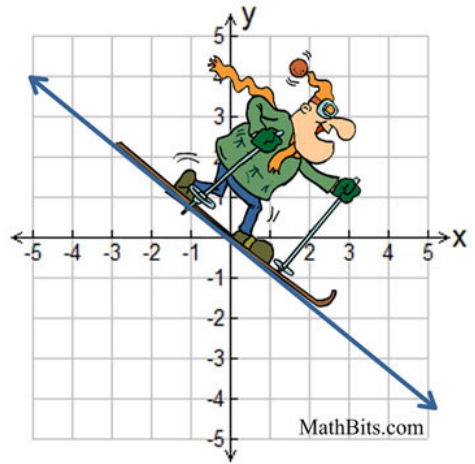
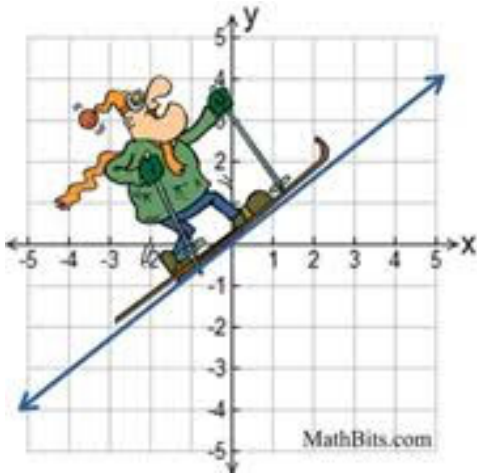
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**Learning Goal 6.1**

Calculating the slope of the line and

- Using the slope to graph a line, and
- Applying the slope to parallel and perpendicular lines.

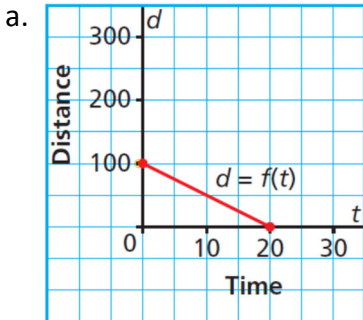
Uphill	Flat	Downhill
		



$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} \begin{matrix} \text{change in } y \\ \text{change in } x \end{matrix} = \frac{y_2 - y_1}{x_2 - x_1}$$

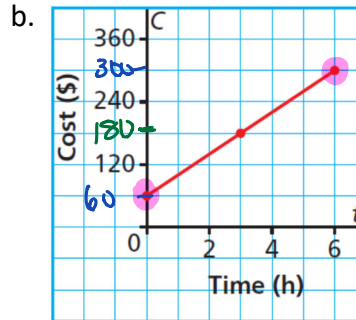
 $(x_1, y_1)$  and  $(x_2, y_2)$  are points on the line.

**Example** What is the value of the slope of the line? What does the slope represent?



$$\text{Slope} = \frac{-100}{+20} = -5$$

velocity



$$\text{Slope} = \frac{+240}{+6} = \$40/\text{hr.}$$

$$\frac{120}{3} = \$40/\text{hr.}$$

**Example** Find the slope of each of the following line segments.

Slope of Line Segment	
$OA = \frac{15-0}{4-0} = \frac{15}{4}$	
$AB = \frac{15-15}{10-4} = \frac{0}{6} = 0$	
$BC = \frac{25-15}{14-10} = \frac{10}{4} = \frac{5}{2}$	
$CD = \frac{25-25}{18-14} = \frac{0}{4} = 0$	
$DE = \frac{0-25}{28-18} = \frac{-25}{10} = -\frac{5}{2}$	

**Example** Find the slope of each of the following line segments.

Slope of Line Segment	
$OA = \frac{8-0}{2-0} = \frac{8}{2} = 4$	
$AB = \frac{6-8}{4-2} = \frac{-2}{2} = -1$	
$BC = \text{DNE / NS} \quad \frac{4-6}{4-4} = \frac{-2}{0}$	
$CD = \frac{6-4}{6-4} = \frac{2}{2} = 1$	
$DE = \frac{0-6}{8-6} = \frac{-6}{2} = -3$	

Summary			
Uphill	Horizontal	Vertical	Downhill
+ve	0	NS   DNE	-ve