

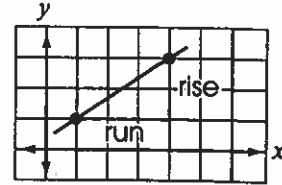
# Slope



## Words TO LEARN

**Slope of a line:** the slope of a line measures the steepness and shows the direction

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in y-coordinates}}{\text{change in x-coordinates}}$$

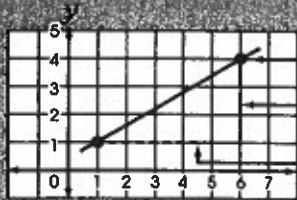


### Example

Find the slope of each line and state whether it is positive or negative.

Steps to find the slope of a line:

- 1st Choose any 2 points on the line.
- 2nd Determine the change in y and the change in x.

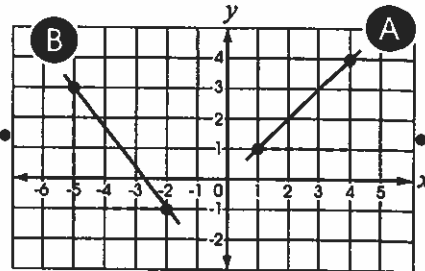


Choose 2 points.  
Change in y: 3 units  
Change in x: 5 units

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{3}{5}$$

Since the line rises to the right, it is a **positive slope**.

### Try This



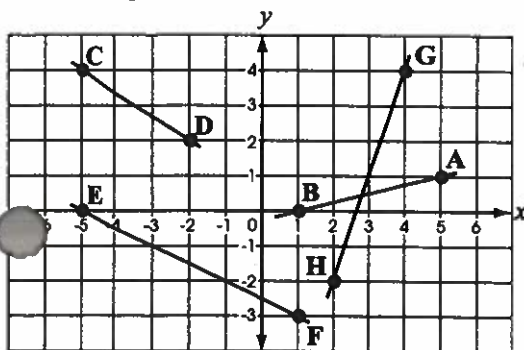
**Line A:** a \_\_\_\_\_ slope  
(rises to the right)

$$\text{Slope} = \frac{\square}{3} = \underline{\hspace{2cm}}$$

**Line B:** a \_\_\_\_\_ slope  
(falls to the right)

$$\text{Slope} = -\frac{\square}{\square} = \underline{\hspace{2cm}}$$

State whether the slope of each line is positive or negative and find the slope. Then check the steepest line.



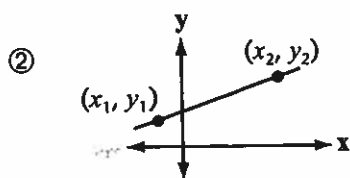
①  $\overline{AB}$ : a \_\_\_\_\_ slope ;

$\overline{CD}$ : a \_\_\_\_\_ slope ;

$\overline{EF}$ : a \_\_\_\_\_ slope ;

$\overline{GH}$ : a \_\_\_\_\_ slope ;

Complete the slope formula. Then apply the formula to find the slope of the line passing through each pair of points.



$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - \text{change in } y\text{-coordinates}}{x_2 - \text{change in } x\text{-coordinates}}$$

③ (0,1) and (2,3)

$$\text{Slope} = \frac{3 - \text{change in } y\text{-coordinates}}{2 - \text{change in } x\text{-coordinates}} =$$

④ (3,6) and (6,-3)

⑤ (0,0) and (1,7)

⑥ (3,8) and (12,8)

⑦ (-5,8) and (2,0)

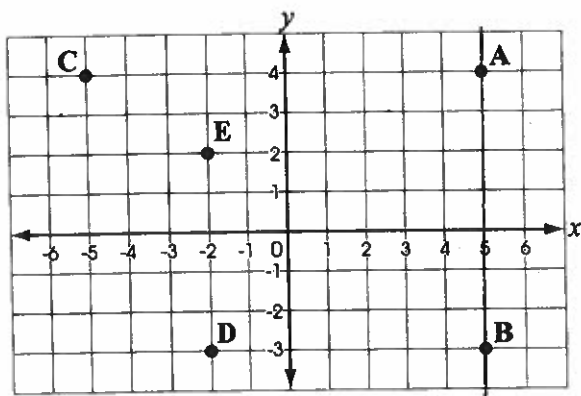
⑧ (-5,8) and (-5,-8)

⑨ (-2,-7) and (2,-14)

⑩ (-10,10) and (5,-10)

⑪ (-11,-4) and (11,-4)

Draw lines on the grid. Then find the slopes of the lines.



**SLOPES**

⑫  $\overline{AB}$ : \_\_\_\_\_

⑬  $\overline{AC}$ : \_\_\_\_\_

⑭  $\overline{BC}$ : \_\_\_\_\_

⑮  $\overline{BD}$ : \_\_\_\_\_

⑯  $\overline{AD}$ : \_\_\_\_\_

⑰  $\overline{CD}$ : \_\_\_\_\_

⑱  $\overline{DE}$ : \_\_\_\_\_

⑲  $\overline{BE}$ : \_\_\_\_\_

⑳  $\overline{AE}$ : \_\_\_\_\_

㉑  $\overline{CE}$ : \_\_\_\_\_

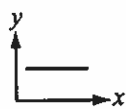


**HINT**

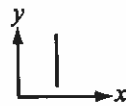
A common formula for slope is

$$m = \frac{\Delta y}{\Delta x}, \text{ where } m = \text{slope}$$

$\Delta y = \text{change in } y\text{-coordinates}$   
 $\Delta x = \text{change in } x\text{-coordinates}$



A horizontal line has a slope of zero because the line is neither rising nor falling.



A vertical line has an undefined slope because x-coordinates do not change with y-coordinates.