

# Slope

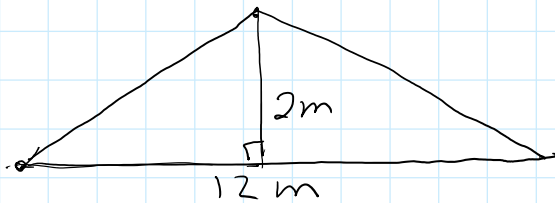
Thursday, April 25, 2019 8:42 AM

Slope refers to the steepness of a line.

Defined as the vertical change  $\updownarrow$   
the horizontal change  $\leftrightarrow$

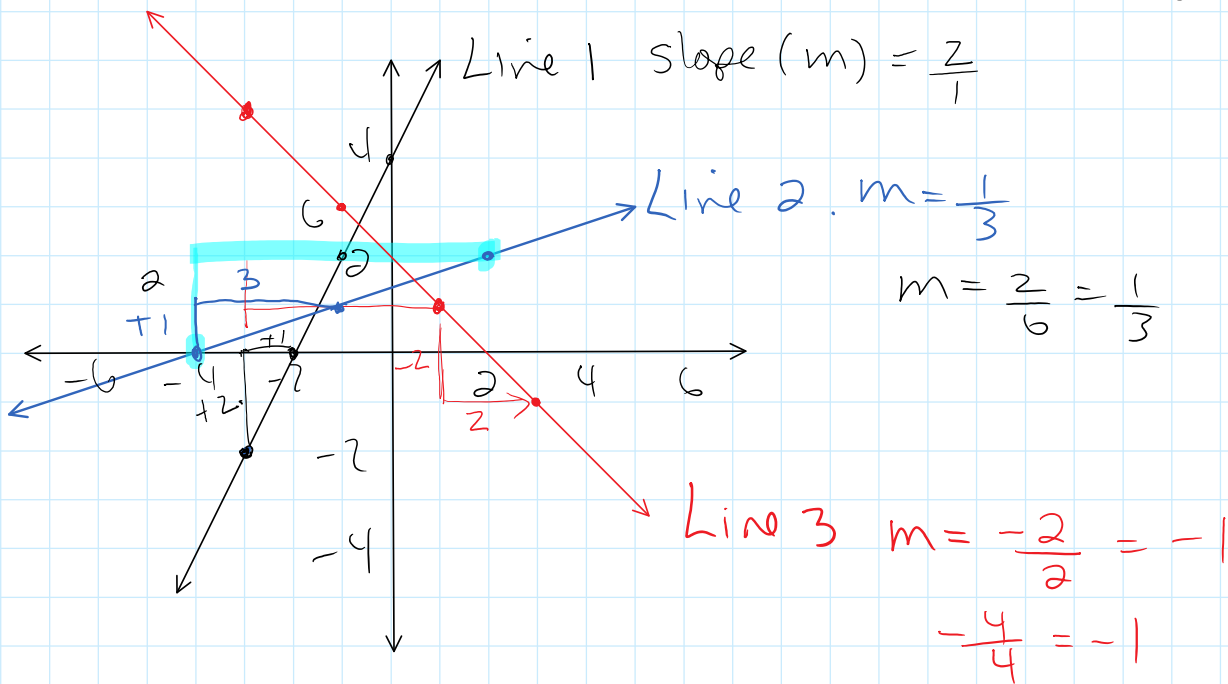
$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

$$\text{Slope} = \frac{\Delta y}{\Delta x} \quad \Delta \text{ means "change in"}$$



What is the slope of the roof?

$$\text{slope} = \frac{2}{12} = \frac{1}{6}$$



Find the slope of the line with points  
 $A(2, 3)$  and  $B(5, 7)$   
 $x_1, y_1$  slope =  $\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

$A(2, 3)$  and  $B(5, 7)$   
 $x_1, y_1$  slope =  $\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 3}{5 - 2} = \frac{4}{3}$

$$\frac{3 - 7}{2 - 5} = \frac{-4}{-3} = \frac{4}{3}$$

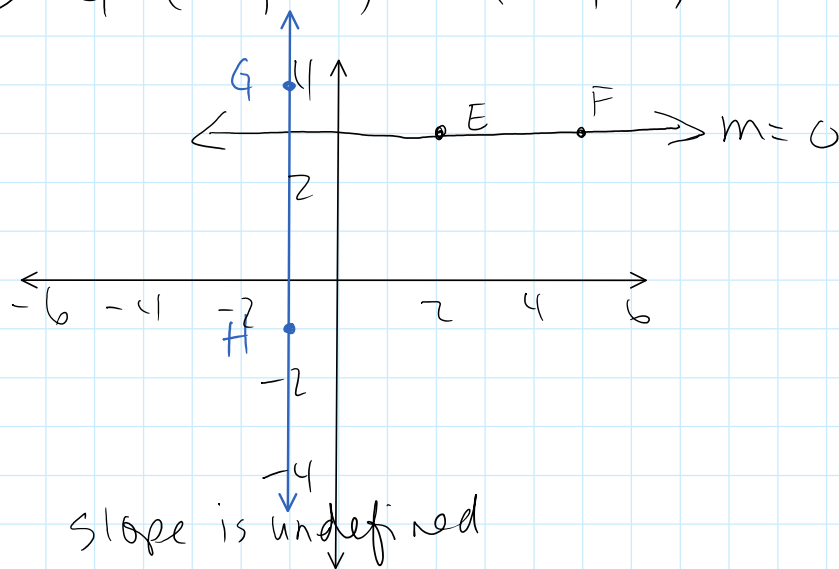
slope formula  $m = \frac{y_2 - y_1}{x_2 - x_1}$

Try: Find the slope of the lines with the following points:

①  $C(-1, 3)$   $D(2, 1)$   $m = \frac{1 - 3}{2 - (-1)} = \frac{-2}{3}$   
 $x_1, y_1$   $x_2, y_2$

②  $E(2, 3)$   $F(5, 3)$   $m = \frac{3 - 3}{5 - 2} = \frac{0}{3} = 0$

③  $G(-1, 4)$   $H(-1, -1)$   $m = \frac{-1 - 4}{-1 - (-1)} = \frac{-5}{0}$   
 undefined

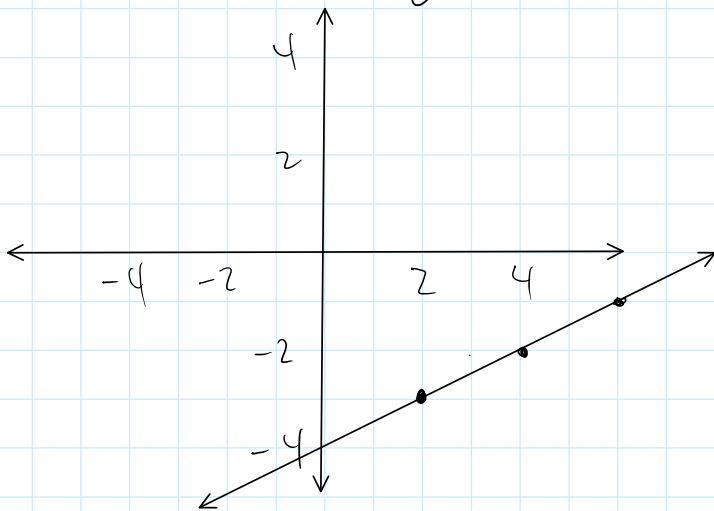


Recap

① Lines that rise (ie go uphill) from left to right have positive slopes.

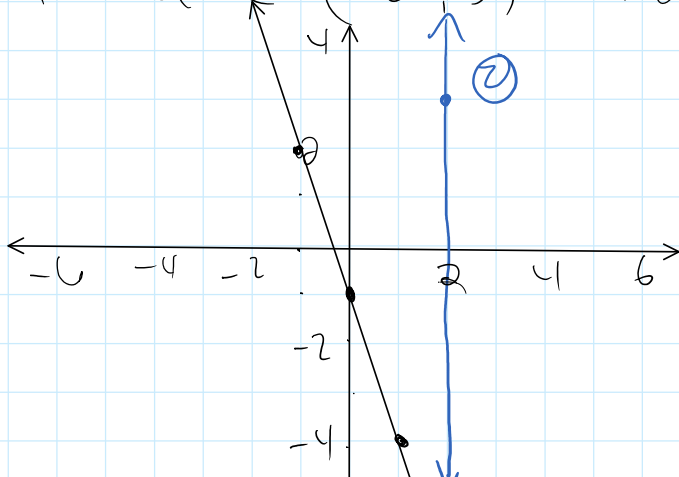
- ① Lines that rise (ie go uphill) from left to right have positive slopes.
- ② Lines that fall (ie. go downhill) from left to right have negative slopes.
- ③ Horizontal lines have slopes of 0.
- ④ Vertical lines have undefined slopes.

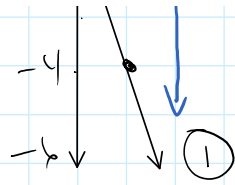
Graph the line with a point A (2, -3) and a slope of  $\frac{1}{2}$ .



Try: Graph the lines with the following:

- ① Point B (-1, 2) and slope -3.  $m = \frac{-3}{1}$
- ② Point C (2, 3) and undefined slope.





$$m = \frac{500}{95} \text{ m/s} \quad 5.26 \text{ m/s}$$

Pg 325 - 328 # 1-14.