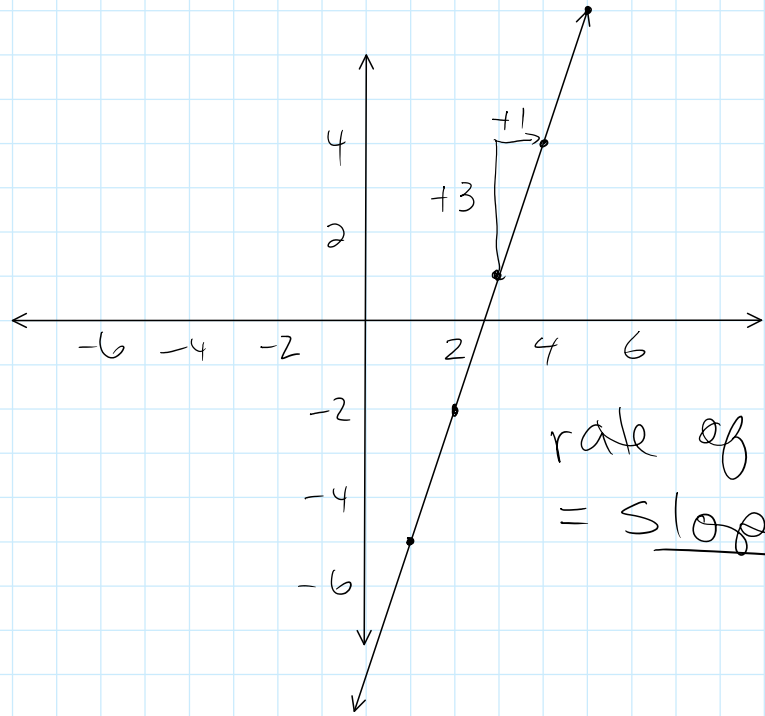


Slope

Friday, November 29, 2019 12:02 PM

| x | y |
|---|----|
| 1 | -5 |
| 2 | -2 |
| 3 | 1 |
| 4 | 4 |
| 5 | 7 |

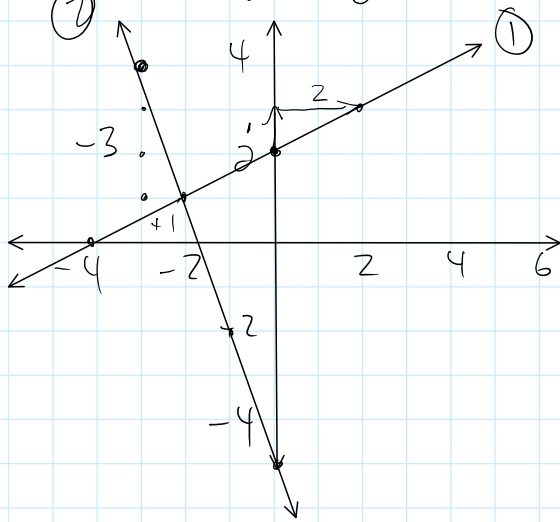
$$y = 3x - 8$$



rate of change
= slope

$$\text{Slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{\text{rise}}{\text{run}} \quad \text{Slope} = \frac{3}{1}$$

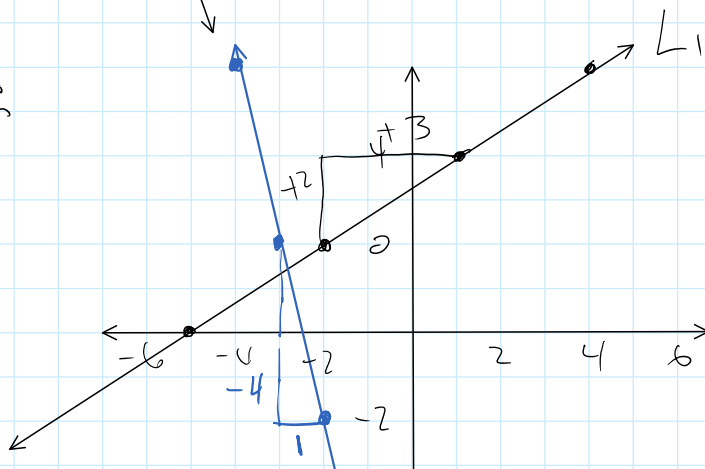
Find slope from a graph.



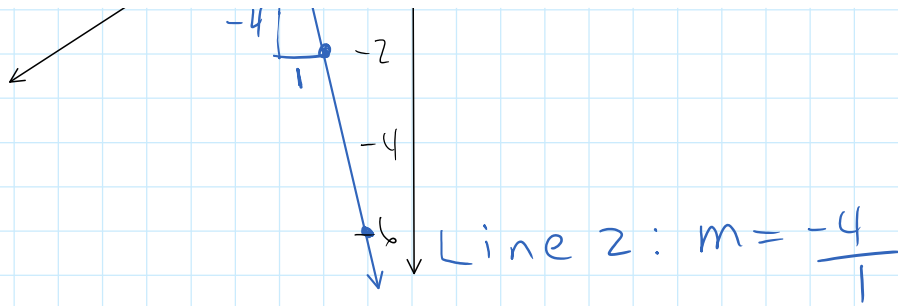
read slope L → R.
① $\frac{\text{rise}}{\text{run}} = \frac{1}{2} \rightarrow \text{slope}$

② $\frac{\text{rise}}{\text{run}} = \frac{-3}{1}$

Try:



Line 1: $m = \frac{2}{3}$



Find slope of the line with points

$A(2, 3)$ and $B(-3, -1)$
 x_1, y_1 x_2, y_2

change in y : $-1 - 3 = -4$ slope = $\frac{-4}{-5} = \frac{4}{5}$
 change in x : $-3 - 2 = -5$

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

Points C $(-1, 4)$ D $(-5, -8)$
 x_1, y_1 x_2, y_2

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-8 - 4}{-5 - (-1)} = \frac{-12}{-4} = \frac{3}{1} = 3$$

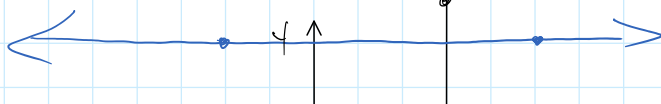
$$\frac{4 - (-8)}{-1 - (-5)} = \frac{12}{4} = 3$$

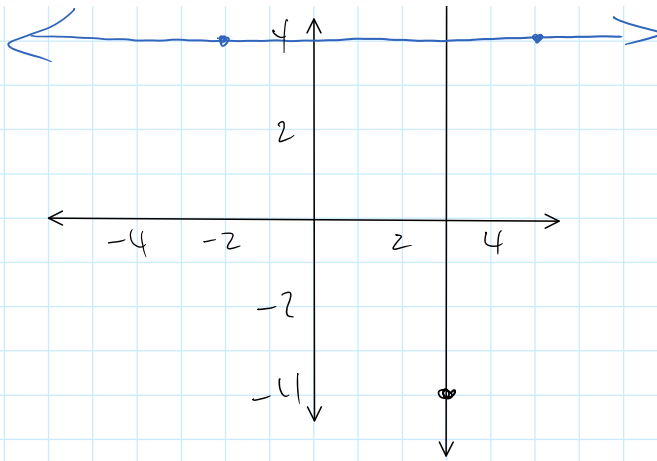
Try: Find the slope of the lines with the following points:

① E $(-1, -6)$ F $(3, 4)$ $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - (-6)}{3 - (-1)} = \frac{10}{4} = \frac{5}{2}$

② G $(3, -4)$ H $(3, 5)$ $m = \frac{5 - (-4)}{3 - 3} = \frac{9}{0}$ undefined

③ J $(-2, 4)$ K $(5, 4)$ $m = \frac{4 - 4}{5 - (-2)} = \frac{0}{7} = 0$





Slope

- When looking left to right

- ① Lines that go uphill ↗ have positive slopes
- ② Lines that go downhill ↘ have negative slopes.
- ③ Horizontal lines have slopes of 0
- ④ Vertical lines have undefined slopes.