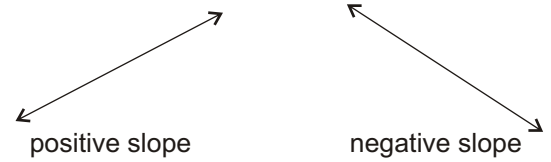


Slope

The slope of a line describes how steep the line is. Slope is expressed as a ratio. The ratio is the change in the y-value as compared to the change in the x-value.

$$\text{slope} = \frac{\Delta y}{\Delta x} \text{ or } \frac{y_2 - y_1}{x_2 - x_1}$$

If a line is rising from left to right, the slope of the line is positive.
 If the line is falling from left to right the slope is negative.



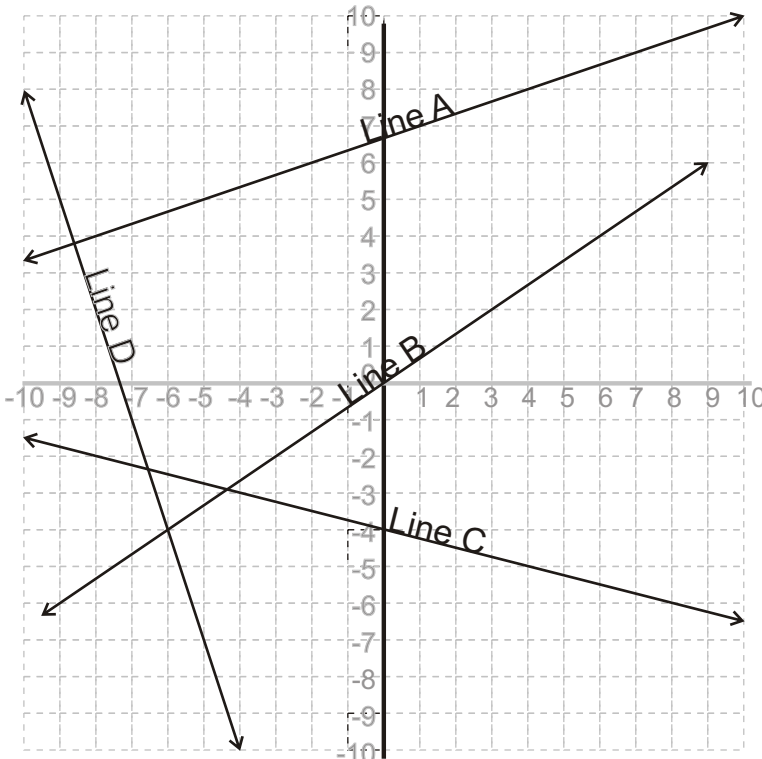
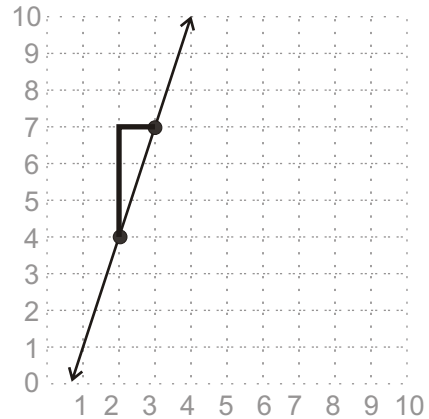
The change in y is called the rise. This is the numerator. The y-axis is up and down so the rise will go up or down.

The change in x is called the run which is the denominator. The run is read from left to right.

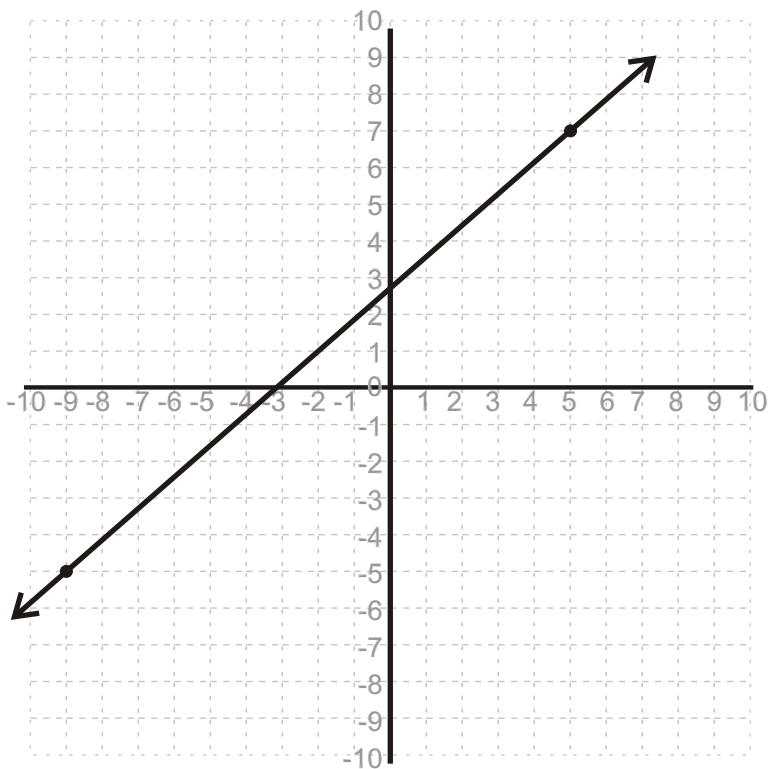
Examine the example to the right. From one point to the next, the y-value increases by three (from 4 to 7). Therefore the rise is 3.

The x-value increases by 1 (from 2 to 3) so the run is 1.

The slope of the line is 3/1 or just 3.



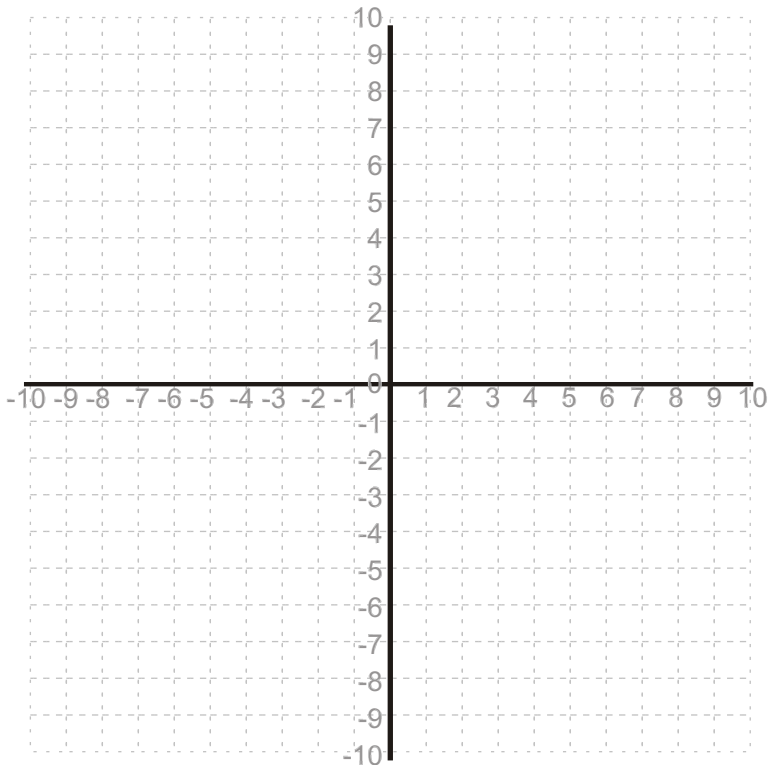
- 1) What is the slope of line A?
- 2) What is the slope of line B?
- 3) What is the slope of line C?
- 4) What is the slope of line D?
- 5) Make a line with a slope of $-\frac{1}{2}$ which passes through (4,6).
- 6) Make a line with a slope of $\frac{3}{4}$ which passes through (0,4).



7) Plot the following pair of points and draw a line which passes through them. $(-4, -5)$ and $(5, 4)$
What is the slope of this line?

8) Plot the following pair of points and draw a line which passes through them. $(6, -4)$ and $(-7, 2)$
What is the slope of this line?

9) Plot the following pair of points and draw a line which passes through them. $(-1, -9)$ and $(1, 9)$
What is the slope of this line?



10) Plot the following pair of points and draw a line which passes through them. $(-4, -6)$ and $(10, 5)$
What is the slope of this line?

11) Plot the following pair of points and draw a line which passes through them. $(6, 3)$ and $(9, 9)$
What is the slope of this line?

12) Plot the following pair of points and draw a line which passes through them. $(-5, 0)$ and $(8, 8)$
What is the slope of this line?