

SLOPE FORMULAE

The slope formula allows one to determine the rate of change relative to the independent and dependent variables where the change is constant. This can be done by identifying two co-ordinate points as (x_1, y_1) and (x_2, y_2) . In the general equation of a line, the slope is the value of “m” and may also be referred to as the gradient.

$$m = \frac{Y_2 - Y_1}{X_2 - X_1}$$

Suppose two points on the Cartesian plane are given by (2,3) and (3,6)

Assume that (2,3) is co-ordinate point 1 and that (3,6) is co-ordinate point 2.

From this, the difference in y (commonly denoted as Δy) would be the difference between 3 and 6 (the y values of the points). Similarly, the difference in x (commonly denoted as Δx) would be the difference between 2 and 3 (the x values of the points).

Hence

$$m = \frac{Y_2 - Y_1}{X_2 - X_1}$$

$$\therefore m = \frac{6-3}{3-2} = \frac{3}{1} = 3$$

One can also evaluate surds in co-ordinate points

Suppose the two points are $(\sqrt{2}, 1)$ and $(\sqrt{9}, 8)$

$$m = \frac{8-1}{\sqrt{9}-\sqrt{2}} = \frac{7}{3-\sqrt{2}} = \frac{7}{1.585} = 4.4164$$