A graph is the pictorial representation of relation between two variable quantities.

Let x and y the two quantities are related as

y = f(x)   [y is a function of x]

The nature of the graph shows the nature of relationship between x and y. Here y depends on x.

i) If y is constant does not depends on x then the graph will be a straight line parallel to x axis. The gap between the x axis and the graph will be equal to value of y which is not changing with x. Thus, when we see this type of graph may be the value of x.
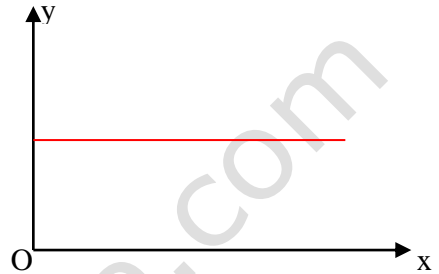
ii) If y is varying at uniform rate with x (change in y per unit change in x) the graph of y verses x will be a straight line but not parallel to the x axis. With Δx change in x change in y is Δy and hence the rate of change of y per unit x will be $\Delta y/\Delta x$. This rate of change of y is also called the slope of the graph and given by $\tan\theta$ (θ is the angle of the graph with x axis). Thus, in any graph the slope of the graph gives the rate of change of the quantity on y axis per unit change in the quantity on x axis.
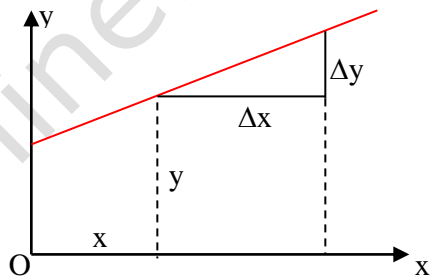
iii) If y is varying with x but not uniformly, as the rate of change of y is not uniform (constant) the slop of the graph will change point to point and hence the graph will be a curve. If the rate is increasing the curve will bent upward and if the rate is decreasing the slop will decrease and the curve will be bent downwards.
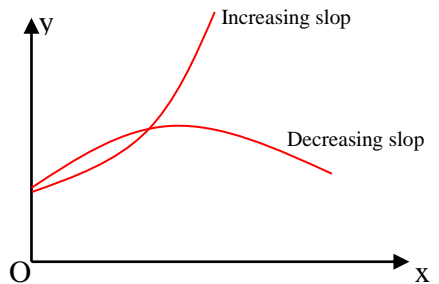
Few main points

1. Graph is the pictorial representation of the relation between the two quantities.

2. In the graph of y verses x value of y for any value of x is given by the height of y from x axis.

3. The slop of the graph ($\tan\theta$) at a point gives the rate of change of the quantity y per unit quantity x or dy/dx.

4. If the graph is a straight line, y changes uniformly with x or dy/dx is constant.

5. If the graph is a curve means y changes non-uniformly with x.