

TRIGNOMETRY.

The word of trigonometry is derived from the Greek words.

Trigonometry = tri+ gon + metry. (Tri means three, gon means side, metry means measure.)

Study of relationship between sides and angles of a triangle.

It is used on $<0^\circ$ & $<90^\circ$

Trigonometric Ratios

Consider a right angled triangle ABC (**Fig.1.**) as shown in figure where angle B=90°. BC is base (side opposite to angle A), AB is perpendicular (side opposite to angle C) and AC is hypotenuse (side opposite to angle B)

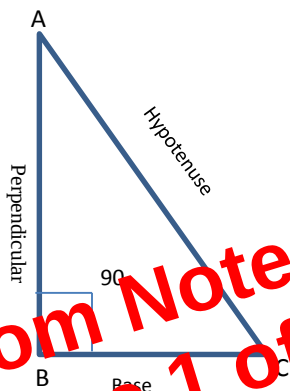


Fig.1

Pythagoras theorem: - In a right angled triangle the square of the long side is equal to the squares of the other two sides.

To find the trigonometric ratios in a right angled triangle –

According to Pythagoras theorem,

$$(\text{Hypotenuse})^2 = (\text{Perpendicular})^2 + (\text{Base})^2$$

$$\text{i.e., } (AC)^2 = (AB)^2 + (BC)^2$$

In the same way -

$$\sin \theta = AB/AC = P/H, \quad \cos \theta = BC/AC = B/H, \quad \tan \theta = AB/BC = P/B$$

$$\operatorname{Cosec} \theta = 1/\sin \theta = H/P, \quad \sec \theta = 1/\cos \theta = H/B, \quad \cot \theta = 1/\tan \theta = B/P$$

Therefore, by applying these formula we can calculate value of sin, cos, tan, cosec, sec and cot.