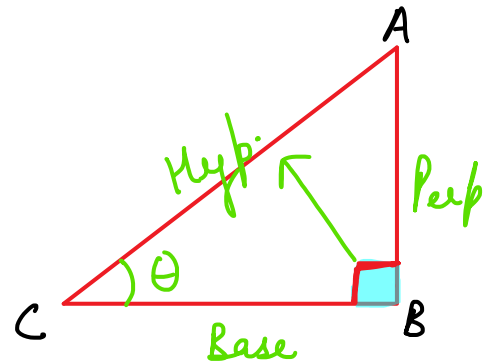


# 8 Trigonometry

## Trigonometry

### 6 Trigonometric Ratios :-

Sin	Cos	Tan
$\frac{P}{H}$	$\frac{B}{H}$	$\frac{P}{B}$
Cosec	Sec	Cot



$$\begin{aligned}\text{Sine} &\longrightarrow \sin \theta = \frac{P}{H} \\ \text{Cosine} &\longrightarrow \cos \theta = \frac{B}{H} \\ \text{Tangent} &\longrightarrow \tan \theta = \frac{P}{B}\end{aligned}$$

$$\begin{aligned}\text{Cosecant} &\longrightarrow \csc \theta = \frac{H}{P} \\ \text{Secant} &\longrightarrow \sec \theta = \frac{H}{B} \\ \text{Cotangent} &\longrightarrow \cot \theta = \frac{B}{P}\end{aligned}$$

### 3 Trigonometric Identities :-

$$1.) \sin^2 \theta + \cos^2 \theta = 1$$

$$2.) 1 + \tan^2 \theta = \sec^2 \theta$$

$$3.) 1 + \cot^2 \theta = \csc^2 \theta$$

Complementary angles :- Sum  $90^\circ$

$$\sin(90^\circ - \theta) = \cos \theta$$

$$\tan(90^\circ - \theta) = \cot \theta$$

$$\sec(90^\circ - \theta) = \operatorname{cosec} \theta$$

$$\cos(90^\circ - \theta) = \sin \theta$$

$$\cot(90^\circ - \theta) = \tan \theta$$

$$\operatorname{cosec}(90^\circ - \theta) = \sec \theta$$

$$\sqrt{\frac{0}{4}}$$

$$\sqrt{\frac{1}{4}}$$

$$\sqrt{\frac{2}{4}}$$

$$\sqrt{\frac{3}{4}}$$

$$\sqrt{\frac{4}{4}}$$

$$\sqrt{\frac{0}{4}}$$

$$\sqrt{\frac{1}{4}}$$

$$\sqrt{\frac{2}{4}}$$

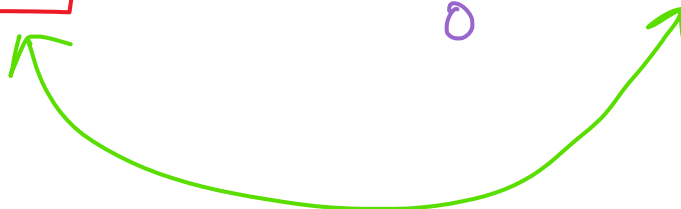
$$\sqrt{\frac{3}{4}}$$

$$\sqrt{\frac{4}{4}}$$

	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$
Sin	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
Cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
Tan	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	N.D.
Cosec	N.D.	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
Sec	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	N.D.
Cot	N.D.	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0

$$\frac{0}{1} = 0$$

$$\frac{1}{0} = \text{N.D.}$$



Sin	Cos	Tan
P	B	P
H	H	B
Cosec	Sec	Cot

$$\tan \theta = \frac{1}{\cot \theta}$$

$$\sin \theta = \frac{1}{\operatorname{cosec} \theta}$$

$$\frac{1}{\tan \theta} = \cot \theta$$

$$\frac{1}{\sin \theta} = \operatorname{cosec} \theta$$

$$\sin \theta \times \operatorname{cosec} \theta = 1$$

$$\cos \theta = \frac{1}{\sec \theta}$$

$$\cos \theta \times \sec \theta = 1$$

$$\tan \theta \times \cot \theta = 1$$

$$\frac{1}{\cos \theta} = \sec \theta$$