Mind Map

TRIGONOMETRY MIND MAP

DEFINITION

Trigonometry is the branch of mathematics that deals with the sides of a Δ and angles of a Δ.

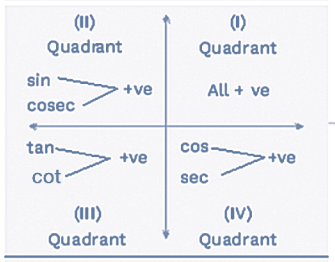
TRIGONOMETRIC RATIOS

1. $\sin\theta = \frac{P}{H}$
2. $\cos\theta = \frac{b}{H}$
3. $\tan\theta = \frac{P}{b}$
4. $\operatorname{cosec}\theta = \frac{H}{P}$
5. $\sec\theta = \frac{H}{b}$
6. $\cot\theta = \frac{b}{P}$

VALUES OF THE SPECIAL ANGLES

Ratio \ θ	0°	30°	45°	60°	90°
sinθ	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cosθ	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tanθ	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	Not Defined

SIGN OF ALL THE TRIGONOMETRIC



Note : Remember word 'ACTS'

RANGE OF TRIGONOMETRIC RATIOS

(I) $-1 \le \sin\theta \le 1$

(II) $-1 \le \cos\theta \le 1$

(III) $-\infty < \tan\theta < \infty$

TRIGONOMETRIC IDENTITIES

1. $\sin^2\theta + \cos^2\theta = 1$
2. $1 + \tan^2\theta = \sec\theta$
3. $1 + \cot^2\theta = \operatorname{cosec}^2\theta$

POLYGON

Area of polygon $= \frac{1}{2} \times$ Perimeter of polygon $\times$ Apothem

SOME IMPORTANT FORMULAE

1. $\sin(A+B) = \sin A\cos B + \cos A\sin B$
2. $\sin(A-B) = \sin A\cos B - \cos A\sin B$
3. $\cos(A+B) = \cos A\cos B - \sin A\sin B$
4. $\cos(A-B) = \cos A\cos B + \sin A\sin B$
5. $\tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A\tan B}$
6. $\sin 2A = 2\sin A\cos A$
7. $\cos 2A$ → $\cos^2 A - \sin^2 A$ / $2\cos^2 A - 1$ / $1 - 2\sin^2 A$
8. $\tan 2A = \frac{2\tan A}{1 - \tan^2 A}$

sin Rule -

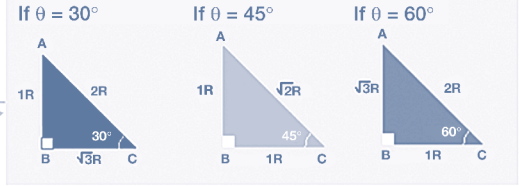
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

cosine Rule -

$$\cos A = \frac{c^2 + b^2 - a^2}{2bc}$$

HEIGHT AND DISTANCE

SOME IMPORTANT TRIGONOMETRIC RATIOS



3 BASIC TERMS FREQUENTLY COME IN HEIGHT AND DISTANCE

(I) Line of sight

(II) Angle of elevation

(III) Angle of depression