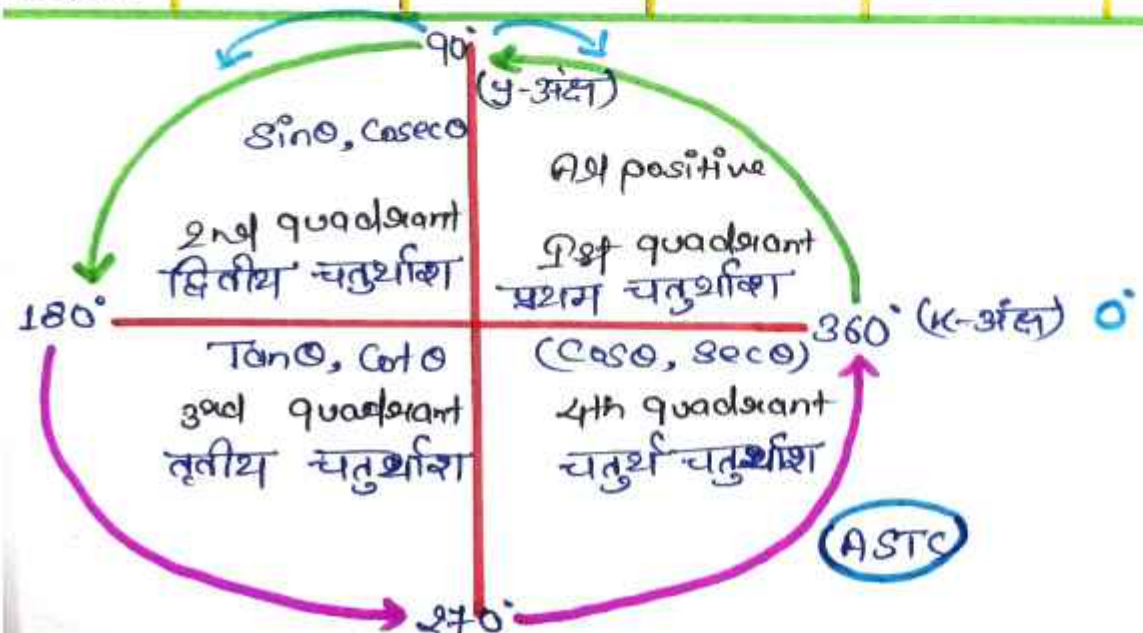
रेल रक्षक बैंच | TRIGONOMETRY | MATHS

Trigonometry (त्रिकोणमिति)

तीन कोण → 30°, 45°, 60°

$\sin\theta$
$\cos\theta$
$\tan\theta$
$\text{cosec}\,\theta \Rightarrow \frac{1}{\sin\theta}$
$\sec\theta \Rightarrow \frac{1}{\cos\theta}$
$\cot\theta \Rightarrow \frac{1}{\tan\theta}$

		$\theta = 0°$	$\theta = 30°$	$\theta = 45°$	$\theta = 60°$	$\theta = 90°$
$\sin\theta$		$\sqrt{\frac{0}{4}} = 0$	$\sqrt{\frac{1}{4}} = \frac{1}{2}$	$\sqrt{\frac{2}{4}} = \frac{1}{\sqrt{2}}$	$\sqrt{\frac{3}{4}} = \frac{\sqrt{3}}{2}$	$\sqrt{\frac{4}{4}} = 1$
$\cos\theta$		1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\frac{\sin\theta}{\cos\theta}$	$\tan\theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞
$\frac{1}{\tan\theta}$	$\cot\theta$	∞	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0
$\frac{1}{\cos\theta}$	$\sec\theta$	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞
$\frac{1}{\sin\theta}$	$\text{cosec}\,\theta$	∞	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1



TRIGONOMETRY

केवल y-अक्ष पर Ratio change होगा।

$\sin\theta \rightleftharpoons \cos\theta$

$\tan\theta \rightleftharpoons \cot\theta$

$\sec\theta \rightleftharpoons \operatorname{cosec}\theta$

$\sin(90+\theta) \Rightarrow \cos\theta$

$\sin(90-\theta) \Rightarrow \cos\theta$

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

$\cos(90+\theta) = -\sin\theta$

\# $\sin(90+\theta) = \cos\theta$
$\sin(90-\theta) = \cos\theta$

\# $\cos(90-\theta) = \sin\theta$
$\cos(90+\theta) = -\sin\theta$

\# $\tan(90-\theta) = \cot\theta$
$\tan(90+\theta) = -\cot\theta$

\# $\cot(90-\theta) = \tan\theta$
$\cot(90+\theta) = -\tan\theta$

$\cos(135^\circ) =$ (II nd)

$\cos(135^\circ) = \cos(90+45)$

$\Rightarrow -\sin 45^\circ$

$\Rightarrow \frac{-1}{\sqrt{2}}$ //

1. $\sin 150^\circ = ? \rightarrow \sin(90+60) \Rightarrow \cos 60^\circ = \frac{1}{2}$ //

$\hookrightarrow \sin(180-30^\circ) \Rightarrow \sin 30^\circ = \frac{1}{2}$ //

2. $\tan(150^\circ) = ? \rightarrow \tan(90+60) \Rightarrow -\cot 60^\circ \Rightarrow \frac{-1}{\sqrt{3}}$ //

$\hookrightarrow \tan(180-30) \Rightarrow -\tan 30^\circ \Rightarrow \frac{-1}{\sqrt{3}}$ //

3. $\cot 120^\circ = ? \rightarrow \cot(90+30) \Rightarrow -\tan 30^\circ = \frac{-1}{\sqrt{3}}$ //

$\hookrightarrow \cot(180-60) \Rightarrow -\cot 60^\circ = \frac{-1}{\sqrt{3}}$ //

4. $\operatorname{cosec} 120^\circ = ? \rightarrow \operatorname{cosec}(90+30) \Rightarrow \sec 30^\circ \Rightarrow \frac{2}{\sqrt{3}}$ //

$\hookrightarrow \operatorname{cosec}(180-60) \Rightarrow \operatorname{cosec} 60^\circ \Rightarrow \frac{2}{\sqrt{3}}$ //

TRIGONOMETRY

7. Find the value of $\sec(2100)^\circ$.

$\sec(2100)^\circ$ का मान ज्ञात कीजिए।

(a) 1

(b) 4

(c) 2 //

(d) 3

Solve:

$\Rightarrow \sec 2100^\circ$

$\Rightarrow \sec(6 \times 360 - 60^\circ)$

$\Rightarrow \sec 60^\circ$

$\Rightarrow 2$ //

$360 \overline{)2160}$

