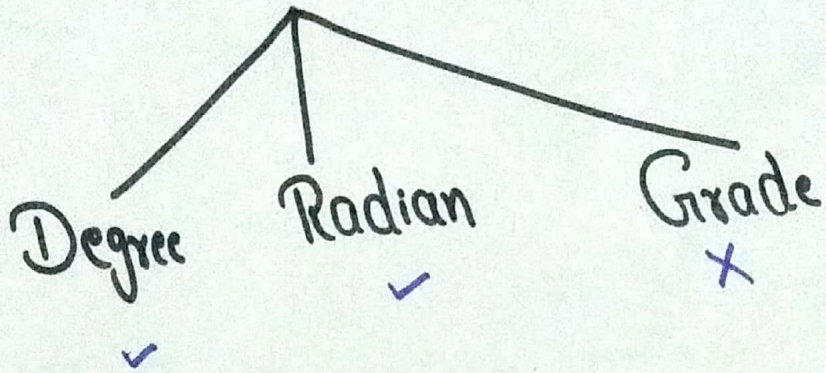
TRIGONOMETRY

MEASURMENT OF ANGLE



Relation π Radian = 180° degree

OR

π^c

(*) 1 Radian = $\frac{180^\circ}{\pi}$

(*) $1^\circ = \frac{\pi}{180}$ Radian

$1' = 60''$

(Minute) (Second)

$1^\circ = 60'$

Ex- 30° Convert in Radian

$= 30^\circ \times \frac{\pi}{180} = \frac{\pi^c}{6}$

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2

$\frac{\pi}{6}$ Radian $= \frac{\pi}{6} \times \frac{180^{30}}{\pi}$

$= 30^\circ$

3

6 Radian Convert it into degree

$6^c = 6 \times \frac{180}{\pi}$

$= 6 \times \frac{180}{\frac{22}{7}}$

$= \frac{3780}{11}$

$= 343\frac{7}{11}$

$= 343^\circ \frac{7}{11} \times 60'$

$= 343^\circ 38\frac{2}{11}'$

$= 343^\circ 38' \frac{2}{11} \times 60'' = 343^\circ 38' 11''$

$\frac{6}{1} \times \frac{180}{\frac{22}{7}}$

$= \frac{6 \times 180}{1} \times \frac{7}{22}$

$= \frac{6 \times 180 \times 7}{22}$

$= \frac{3780}{11}$

$= 343\frac{7}{11}$

54 × 7

38
11) 42
33
90
88
2
10 9
11) 120
11
100
99
1

343
11) 3780
33
48
44
40
33
7

(2)

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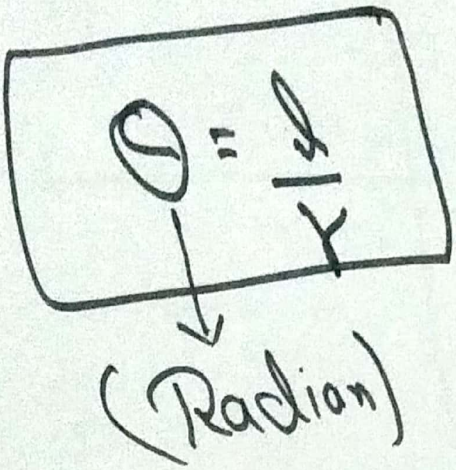
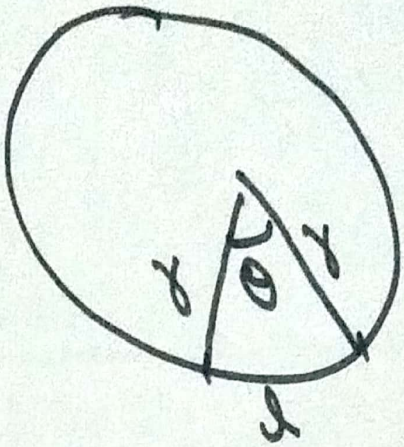
⊛ Angle Made by Arc —

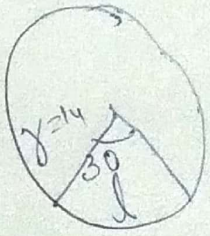




Ex-1 find the length of arc of radius 14cm made angle 30° at centre.

Soln

$\theta = 30^\circ = 30 \times \frac{\pi}{180}$



$= \pi/6$ Radian

$\theta = l/r$

$\therefore l = r \times \theta$

$= 14 \times \frac{\pi}{6}$

$= \frac{7\pi}{3} = \frac{7}{3} \times \frac{22}{7}$

$= \frac{22}{3}$ cm

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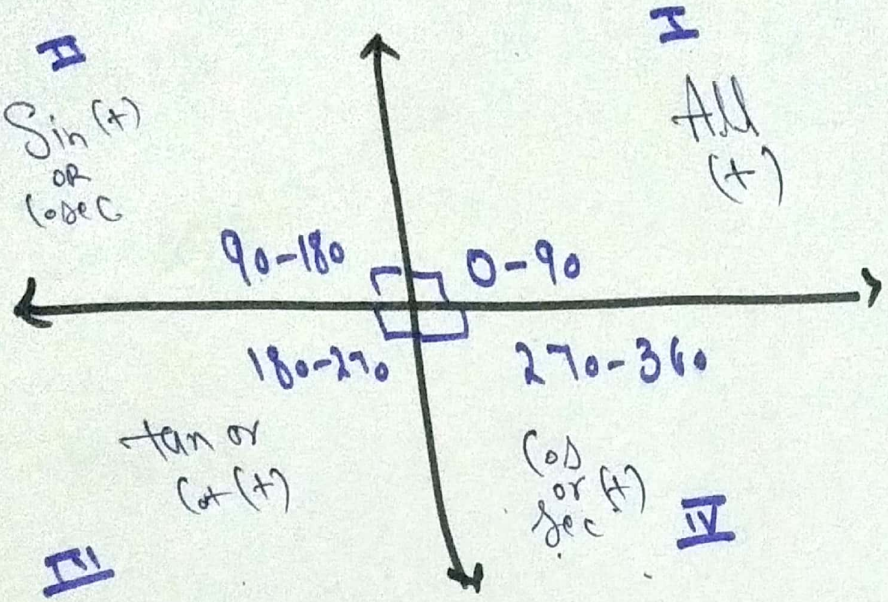
Quadrant System –



ALL Student take Coffee.

(90, 270)± → Change

Sin ⟷ Cos

tan ⟷ Cot

Sec ⟷ Cosec

(180, 360)± → No change

Ex - Find the Value –

① Sin 120 = Sin (180 − 60) Sin +

= + Sin 60 = $\sqrt{3}/2$

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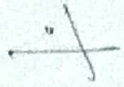
(2) $\tan 135 = \tan(180-45)$

$= -\tan 45 = -1$

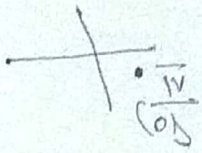
(3) $\cos 150 = \cos(180-30)$

$= -\cos 30 = -\sqrt{3}/2$



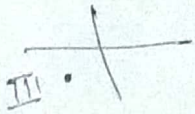
(4) $\sin 300 = \sin(360-60)$

$= -\sin 60 = -\sqrt{3}/2$



(5) $\tan 225 = \tan(180+45)$

$= +\tan 45 = 1$



(6) $\sin 1860 = \sin(360 \times 5 + 60)$

$= +\sin 60 = \sqrt{3}/2$

$$360 \overline{)1860}\ (5,\ 1800,\ 60)$$

(7) $\cos 1470 = \cos(360 \times 4 + 30)$

$= +\cos 30$

$= \sqrt{3}/2$

$$360 \overline{)1470}\ (4,\ 1440,\ 30)$$

Imp

(1) $\sin(-\theta) = -\sin\theta$

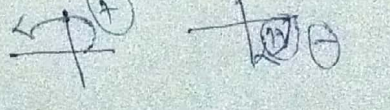
(2) $\operatorname{cosec}(-\theta) = -\operatorname{cosec}\theta$

(3) $\tan(-\theta) = -\tan\theta$

(4) $\cot(-\theta) = -\cot\theta$

(5) $\cos(-\theta) = \cos\theta$

(6) $\sec(-\theta) = \sec\theta$



(5)

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