

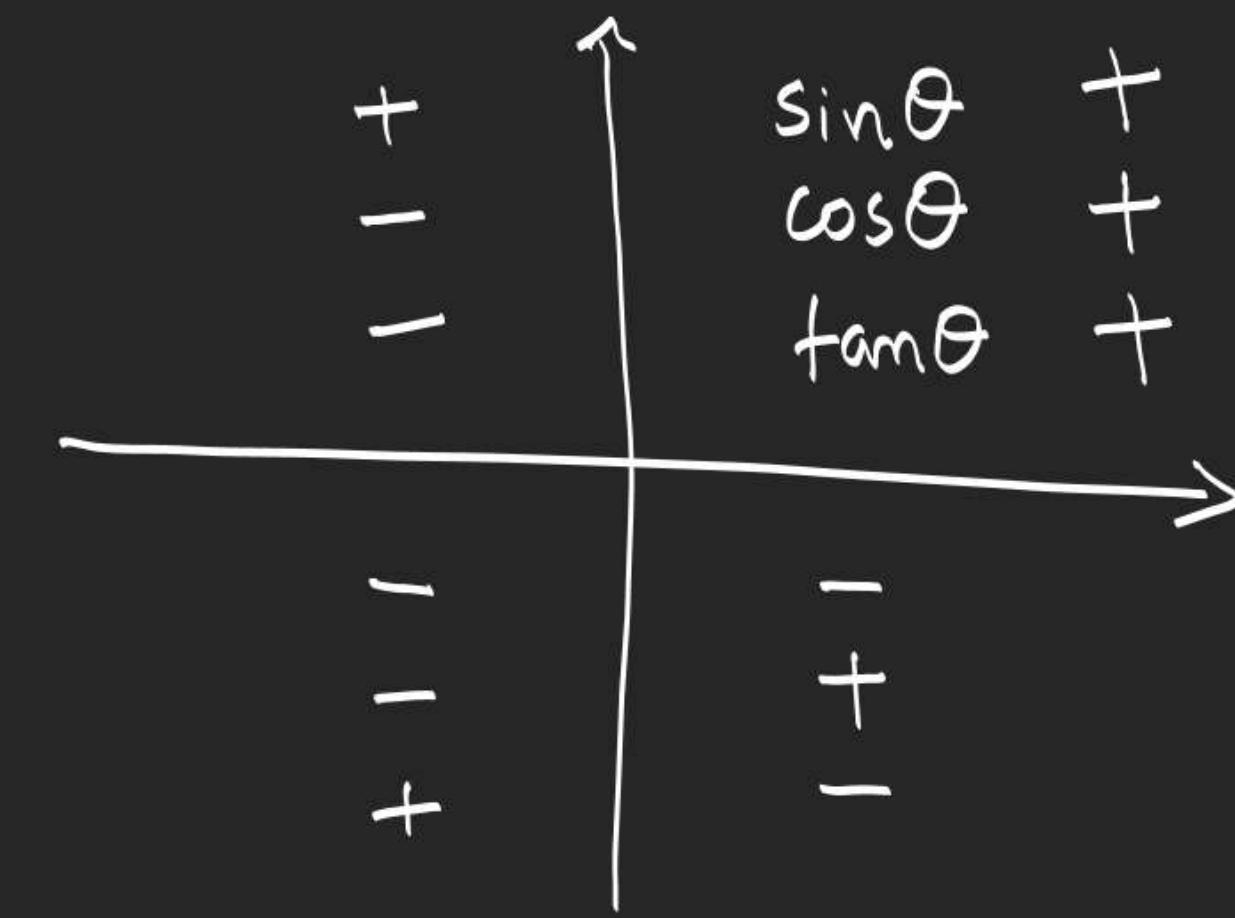
$$\sin \theta = \frac{y}{r}$$

$$\cos \theta = \frac{x}{r}$$

$$\sin(\pi + \theta) = \frac{-y}{r} = -\sin \theta$$

$$\cos(\pi + \theta) = \frac{-x}{r} = -\cos \theta$$

$$\tan(\pi + \theta) = \frac{\sin(\pi + \theta)}{\cos(\pi + \theta)} = \tan \theta$$



$$\sin\left(\frac{\pi}{2} \pm \theta\right) = \pm \cos\theta$$

$$\cos\left(\frac{\pi}{2} \pm \theta\right) = \pm \sin\theta$$

$$\tan\left(\frac{\pi}{2} \pm \theta\right) = \pm \cot\theta$$

$$\cos(2\pi - \theta) = \cos\theta \quad \sin(\pi + \theta) = -\sin\theta$$

$$\sec\left(\frac{3\pi}{2} + \theta\right) = \csc\theta \quad \tan\left(\frac{3\pi}{2} - \theta\right) = -\cot\theta$$

$$\sin\left(\frac{\pi \pm \theta}{2\pi \pm \theta}\right) = \pm \sin\theta$$

$$\cos\left(\frac{\pi \pm \theta}{2\pi \pm \theta}\right) = \pm \cos\theta$$

$$\tan\left(\frac{\pi \pm \theta}{2\pi \pm \theta}\right) = \pm \tan\theta$$

$$\cos(2\pi - \theta) = \cos(-\theta) = \cos \theta$$

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

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

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

$$\tan(\theta - \pi) = -\tan(\pi - \theta) = -(-\tan \theta) = \tan \theta.$$

$$\cos 330^\circ = \cos(360^\circ - 30^\circ) = \cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$\cot \frac{3\pi}{4} = \cot \left(\pi - \frac{\pi}{4}\right) = -\cot \frac{\pi}{4} = -1$$

$$\begin{aligned}
 & \cos \frac{\pi}{3} + \cos \frac{2\pi}{3} + \cos \frac{3\pi}{3} + \cos \frac{4\pi}{3} + \cos \frac{5\pi}{3} + \cos \frac{6\pi}{3} \\
 &= \frac{1}{2} + \left(-\frac{1}{2}\right) + (-1) + \left(-\frac{1}{2}\right) + \left(\frac{1}{2}\right) + (1) \\
 &= 0
 \end{aligned}$$

Sum $\sum_{r=1}^4 r = 1+2+3+4 = 10$
 Product $\prod_{r=1}^4 r = 1 \times 2 \times 3 \times 4 = 24$

$$\frac{1}{4} \left(\cos \frac{\pi}{4} + \cos \frac{2\pi}{4} + \cos \frac{3\pi}{4} + \cos \frac{4\pi}{4} \right) = 0$$

$$x=1$$

$$= \cos \frac{\pi}{4} + \cancel{\cos \frac{2\pi}{4}} + \cos \frac{3\pi}{4} + \cos \frac{4\pi}{4}$$

↙

$$= 0$$

$$\therefore \text{ i) } A = \sin\theta + \sin\left(\frac{\pi}{2} + \theta\right) = \sin\theta + \cos\theta$$

$$\beta = \cos\theta + \cos\left(\frac{\pi}{2} + \theta\right) = \cos\theta - \sin\theta$$

$$\text{find } A^2 + \beta^2 = 2(\sin^2\theta + \cos^2\theta) = 2.$$

$$\text{2) } \sec^2 \frac{2\pi}{3} = \sec\left(\pi - \frac{\pi}{3}\right) = -\sec \frac{\pi}{3} = -2.$$

$$\text{3) } \tan \frac{11\pi}{6} = \tan\left(2\pi - \frac{\pi}{6}\right) = -\tan \frac{\pi}{6} = -\frac{1}{\sqrt{3}}.$$

Express in terms of trigonometric ratio
of angle between 0 to 45° .

$$(i) \csc(1438^\circ) = \csc(1438^\circ - 1440^\circ)$$

$$= -\csc(2^\circ) \quad 2n\pi + \theta = \theta$$

$$(ii) \cot(-963^\circ)$$

$$\cot(-963^\circ + 1080^\circ)$$

$$= \cot(117^\circ) = \cot(90^\circ + 27^\circ) = -\tan 27^\circ$$

Ex-6 (16 to 22)

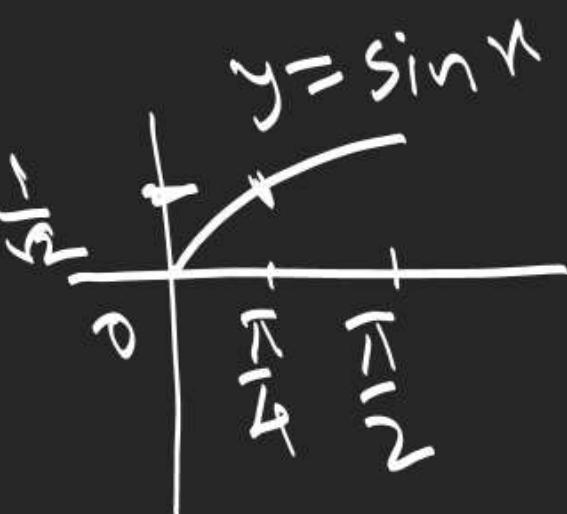
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Ex-7

Ex-10 $\rightarrow 4 + 0.27$

$$\sin \theta < \cos \theta \Rightarrow \theta \in (0, \frac{\pi}{4})$$

$$\sin \frac{\pi}{4} = \cos \frac{\pi}{4}$$



$$\boxed{\theta \in (0, \frac{\pi}{2})}$$

$$\sin \theta > \cos \theta, \quad \theta = ?$$

$$\Rightarrow \tan \theta > 1$$

$$\Rightarrow \theta \in (\frac{\pi}{4}, \frac{\pi}{2})$$

