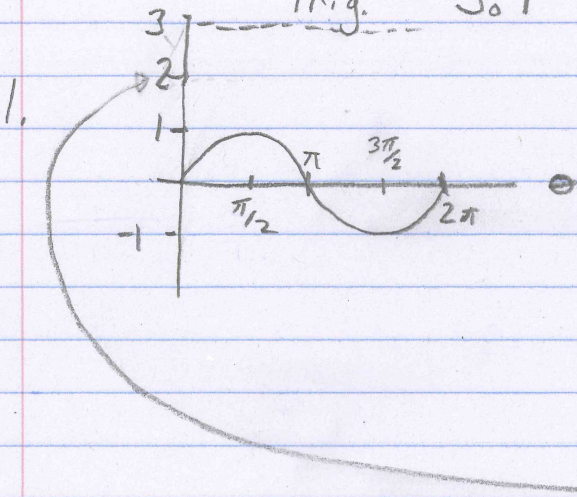


MHF44

Trig. Solⁿ



$$y = \sin \theta$$

$$\text{set } y = 3$$

$$3 = \sin \theta$$

$$\theta = \sin^{-1}(3)$$

↑

What is θ when $y = 3$?

From graph, there is no solⁿ.

or

$$\sin \theta = 3$$

$$\theta = \sin^{-1}(3)$$

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

How can $\frac{y}{r} = 3$?

→ 'y' would have to be 3 times larger than 'r' but that is not possible,

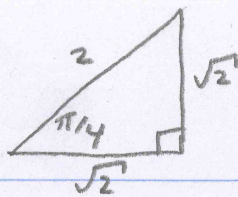
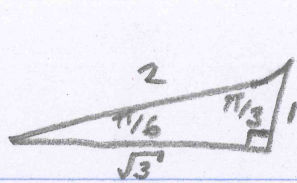
$$2. \quad \tan\left(\frac{\pi}{2}\right) = \frac{\sin\left(\frac{\pi}{2}\right)}{\cos\left(\frac{\pi}{2}\right)}$$

From graph, $\sin\left(\frac{\pi}{2}\right) = 1$

From graph, $\cos\left(\frac{\pi}{2}\right) = 0$

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

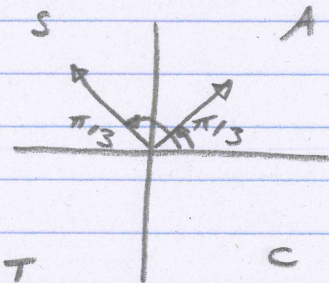
→ undefined (error on calculator).



$$3a) \sin \theta = \frac{\sqrt{3}}{2}$$

$$\theta = \sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$$

$$R.A. = \pi/3$$



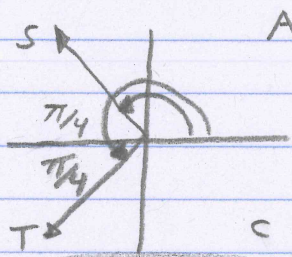
$$\theta_1 = \pi/3 \quad \theta_2 = 2\pi/3$$

$$b) \cos \theta = -\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$\cos \theta = -\frac{\sqrt{2}}{2}$$

$$\theta = \cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$$

$$R.A. = \pi/4$$

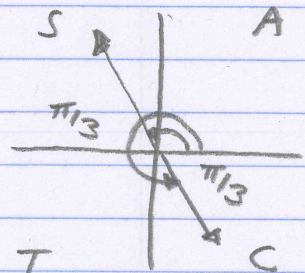


$$\theta_1 = \frac{3\pi}{4} \quad \theta_2 = \frac{5\pi}{4}$$

$$c) \tan \theta = -\frac{\sqrt{3}}{1}$$

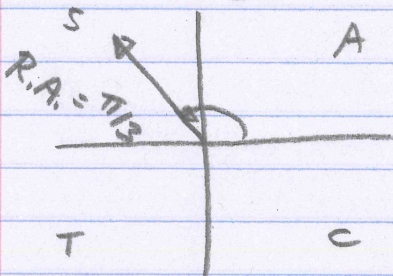
$$\theta = \tan^{-1}\left(-\frac{\sqrt{3}}{1}\right)$$

$$R.A. = \frac{\pi}{3}$$



$$\theta_1 = \frac{2\pi}{3} \quad \theta_2 = \frac{5\pi}{3}$$

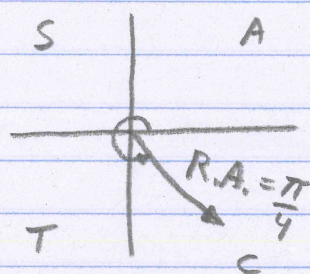
$$4. a) \sin\left(\frac{2\pi}{3}\right)$$



$$= \sin\left(\frac{\pi}{3}\right)$$

$$= \frac{\sqrt{3}}{2}$$

$$b) \tan\left(-\frac{\pi}{4}\right)$$

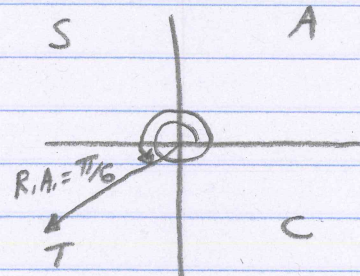


$$= -\tan\left(\frac{\pi}{4}\right)$$

$$= -\frac{\sqrt{2}}{\sqrt{2}}$$

$$= -1$$

$$c) \cos\left(\frac{19\pi}{6}\right)$$



$$= -\cos\left(\frac{\pi}{6}\right)$$

$$= -\frac{\sqrt{3}}{2}$$

$$\begin{aligned} 5. a) \Delta \theta &= 4\frac{3}{8} \cdot (2\pi \text{ rads/rotation}) \\ &= \left(\frac{35}{8}\right) \cdot (2\pi) \\ &= \frac{35\pi}{4} \end{aligned}$$

$$\begin{aligned} b) a &= r\theta \\ a &= (25\text{cm}) \left(\frac{35\pi}{4}\right) \\ &\approx 687.2\text{cm} \end{aligned}$$