Trigonometric Equations Ex 11.1 Q1(v)

We have,

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

$$\Rightarrow \quad \tan\theta = \tan\left(\frac{\pi}{6}\right)$$

$$\Rightarrow \quad \tan\theta = \tan\left(-\frac{\pi}{6}\right) \qquad \left[\because \tan(-\theta) = -\tan\theta\right]$$

$$\Rightarrow \quad \theta = n\pi + \left(-\frac{\pi}{6}\right), n \in z$$

$$\text{or } \theta = n\pi - \frac{\pi}{6}, n \in z$$

Trigonometric Equations Ex 11.1 Q1(vi)

We have,

$$\sqrt{3}\sec\theta = 2$$

$$\Rightarrow \quad \frac{1}{\cos\theta} = \frac{2}{\sqrt{3}}$$

$$\Rightarrow \quad \cos\theta = \frac{\sqrt{3}}{2}$$

$$\Rightarrow \quad \cos\theta = \cos\left(\frac{\pi}{6}\right)$$

$$\Rightarrow \quad \theta = 2n\pi \pm \frac{\pi}{6}, n \in z$$

Trigonometric Equations Ex 11.1 Q2(i)

We have,

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

$$\Rightarrow \quad \sin 2\theta = \sin\left(\frac{\pi}{3}\right)$$

$$\Rightarrow \quad 2\theta = n\pi + (-1)^n \frac{\pi}{3}, n \in z$$

$$\theta = \frac{n\pi}{2} + (-1)^n \frac{\pi}{6}, n \in z$$

Trigonometric Equations Ex 11.1 Q2(ii)

We have,

$$\cos 3\theta = \frac{1}{2}$$

$$\Rightarrow \quad \cos 3\theta = \cos\left(\frac{\pi}{3}\right)$$

$$\Rightarrow \quad 3\theta = 2n\pi \pm \frac{\pi}{3}, n \in z$$

$$\Rightarrow \quad \theta = 2n\frac{\pi}{3} \pm \frac{\pi}{9}, n \in z$$

********** END **********