Chapter 5 Trigonometric Functions Ex 5.3 Q 1.viii

$$\sin\left(-330^\circ\right) = \sin\left(-\left(2\pi - \frac{\pi}{6}\right)\right)$$

$$= \sin\left(2\pi - \frac{\pi}{6}\right) \qquad \left(\because \sin(-\theta) = -\sin\theta\right)$$

$$= -\left(-\sin\frac{\pi}{6}\right) \qquad \left(\because \sin(2\pi - \theta) = -\sin\theta\right)$$

$$= \sin\frac{\pi}{6}$$

$$= \frac{1}{2}$$

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.ix

$$\operatorname{cosec}\left(-1200^\circ\right) = \operatorname{cosec}\left(-\left(7\pi - \frac{\pi}{3}\right)\right)$$

$$= \operatorname{cosec}\left(7\pi - \frac{\pi}{3}\right) \qquad \left(\because \operatorname{cosec}(-\theta) = -\operatorname{cosec}\theta\right)$$

$$= -\operatorname{cosec}\left(2\times 3\pi + \left(\pi - \frac{\pi}{3}\right)\right)$$

$$= -\operatorname{cosec}\left(\pi - \frac{\pi}{3}\right) \qquad \left(\begin{array}{l}\because \operatorname{cosec} \text{ is periodic of period } 2\pi,\\ \therefore \operatorname{cosec}(2\pi + \theta) = \operatorname{cosec}(2n\pi + \theta)\\ \qquad = \operatorname{cosec}\theta \text{ for all } n \in N\end{array}\right)$$

$$= -\operatorname{cosec}\frac{\pi}{3} \qquad \left(\because \operatorname{cosec}(\pi - \theta) = \operatorname{cosec}\theta\right)$$

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

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.x

$$\tan\left(-585^\circ\right) = -\tan(585) \qquad \left(\because \tan(-\theta) = -\tan\theta\right)$$

$$= -\tan\left(3\pi + \frac{\pi}{4}\right)$$

$$= -\tan\left(2\pi + \left(\pi + \frac{\pi}{4}\right)\right) \qquad \left(\because \tan(2\pi + \theta) = \tan\theta\right)$$

$$= -\tan\frac{\pi}{4} \qquad \left(\because \tan(\pi + \theta) = \tan\theta\right)$$

$$= -1$$

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.xi

$$\cos\left(855^\circ\right) = \cos\left(5\pi - \frac{\pi}{4}\right)$$

$$= \cos\left(2\times 2\pi + \left(\pi - \frac{\pi}{4}\right)\right)$$

$$= \cos\left(\pi - \frac{\pi}{4}\right) \qquad \left(\because \cos(2k\pi + \theta) = \cos\theta \text{ for all } k \in N\right)$$

$$= -\cos\frac{\pi}{4} \qquad \left(\because \cos(\pi - \theta) = -\cos\theta\right)$$

$$= \frac{-1}{\sqrt{2}}$$

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.xii

$$\sin 1845^\circ = \sin\left(10\pi + \frac{\pi}{4}\right)$$
$$= \left(2 \times 5\pi + \frac{\pi}{4}\right)$$
$$= \sin \pi \qquad \left(\because \sin(2k\pi + \theta) = \sin\theta, \text{ for all } k \in N\right)$$
$$= \frac{1}{\sqrt{2}}$$

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.xiii

$$\cos 1755^\circ = \cos\left(10\pi - \frac{\pi}{4}\right)$$
$$= \cos\left(2 \times 5\pi - \frac{\pi}{4}\right)$$
$$= \cos\frac{\pi}{4} \qquad \left(\because \cos(2k\pi - \theta) = \cos\theta, k \in N\right)$$
$$= \frac{1}{\sqrt{2}}$$

Chapter 5 Trigonometric Functions Ex 5.3 Q 1.xiv

$$4530^\circ = \left(25\pi + \frac{\pi}{6}\right)$$
$$\therefore \quad \sin 4530 = \sin\left(25\pi + \frac{\pi}{6}\right)$$
$$= \sin\left(2 \times 12\pi + \left(\pi + \frac{\pi}{6}\right)\right)$$
$$= \sin\left(\pi\frac{\pi}{6}\right) \qquad \left(\because \sin(2k\pi + \theta) = \sin\theta, k \in N\right)$$
$$= -\sin\frac{\pi}{6} \qquad \left(\because \sin(\pi + \theta) = -\sin\theta\right)$$
$$= \frac{-1}{2}$$

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