



Question 8:

$$\begin{aligned} \text{(i)} \quad & \sin 54^\circ + \cos 64^\circ \\ &= \sin(90^\circ - 36^\circ) + \cos(90^\circ - 26^\circ) \\ &= \cos 36^\circ + \sin 26^\circ \\ \text{(ii)} \quad & \tan 67^\circ + \cot 59^\circ \\ &= \tan(90^\circ - 23^\circ) + \cot(90^\circ - 31^\circ) \\ &= \cot 23^\circ + \tan 31^\circ \\ \text{(iii)} \quad & \sec 78^\circ + \operatorname{cosec} 56^\circ \\ &= \sec(90^\circ - 12^\circ) + \operatorname{cosec}(90^\circ - 34^\circ) \\ &= \operatorname{cosec} 12^\circ + \sec 34^\circ \\ \text{(iv)} \quad & \cos 75^\circ + \cot 75^\circ \\ &= \cos(90^\circ - 15^\circ) + \cot(90^\circ - 15^\circ) \\ &= \sin 15^\circ + \tan 15^\circ \end{aligned}$$

Question 9:

$$\begin{aligned} & \sin 3A = \cos(A - 26^\circ) \\ \Rightarrow & \cos(90^\circ - 3A) = \cos(A - 26^\circ) \\ \Rightarrow & 90^\circ - 3A = A - 26^\circ \\ \Rightarrow & 4A = 90 + 26 = 116 \\ \therefore & A = 29^\circ \end{aligned}$$

Question 10:

$$\begin{aligned} & \tan 2A = \cot(A - 12^\circ) \\ \Rightarrow & \cot(90^\circ - 2A) = \cot(A - 12^\circ) \\ \Rightarrow & 90^\circ - 2A = A - 12^\circ \text{ or } 3A = 90^\circ + 12^\circ = 102^\circ \\ \text{Hence, } & A = \frac{102^\circ}{3} = 34^\circ \end{aligned}$$

***** END *****

