

$$\textcircled{6} \frac{\cos x}{1+\sin x} + \frac{\cos x}{1-\sin x} = 2 \sec x$$

$$\text{L.S.} = \frac{\cos x}{1+\sin x} + \frac{\cos x}{1-\sin x}$$

$$= \frac{\cos x(1-\sin x) + \cos x(1+\sin x)}{(1+\sin x)(1-\sin x)}$$

$$= \frac{\cos x - \cancel{\cos x \sin x} + \cos x + \cancel{\cos x \sin x}}{1-\sin^2 x}$$

$$= \frac{2 \cos x}{\cos^2 x} = \frac{2}{\cos x} = 2 \left(\frac{1}{\cos x} \right) = 2 \sec x = \text{R.S.}$$

$$\textcircled{9} \cot^2 A - \cos^2 A = \cot^2 A \cos^2 A$$

$$\text{L.S.} = \cot^2 A - \cos^2 A$$

$$= (\cot A - \cos A)(\cot A + \cos A)$$

$$= \left(\frac{\cos A}{\sin A} - \cos A \right) \left(\frac{\cos A}{\sin A} + \cos A \right)$$

$$= \frac{(\cos A - \sin A \cos A)(\cos A + \cos A \sin A)}{\sin^2 A}$$

$$= \frac{\cos^2 A (1 - \sin A)(1 + \sin A)}{\sin^2 A} = \frac{\cos^4 A}{\sin^2 A}$$

$$= \frac{\cos^2 A}{\sin^2 A} \cos^2 A = \cot^2 A \cos^2 A$$