



# VIDYA BHAWAN, BALIKA VIDYAPITH

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(Affiliated to CBSE up to +2 Level)

CLASS: X

SUB.: MATHS (NCERT BASED)

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$$(iv) \text{ L.H.S. } \frac{1 + \sec A}{\sec A} = \frac{1 + \frac{1}{\cos A}}{\frac{1}{\cos A}}$$

$$= \frac{\frac{\cos A + 1}{\cos A}}{\frac{1}{\cos A}} = \frac{\cos A + 1}{\cos A} \times \frac{\cos A}{1}$$

$$= \cos A + 1$$

$$= 1 + \cos A \times \frac{1 - \cos A}{1 - \cos A}$$

[Multiplying and dividing by  $(1 - \cos A)$ ]

$$= \frac{1^2 - \cos^2 A}{1 - \cos A} = \frac{\sin^2 A}{1 - \cos A}$$

[ $\because 1 - \cos^2 A = \sin^2 A$ ]

$$= \text{R.H.S.}$$

$$(v) \text{ L.H.S. } \frac{\cos A - \sin A + 1}{\cos A + \sin A - 1}$$

$$= \frac{\frac{\cos A}{\sin A} - \frac{\sin A}{\sin A} + \frac{1}{\sin A}}{\frac{\cos A}{\sin A} + \frac{\sin A}{\sin A} - \frac{1}{\sin A}}$$

[Dividing each term of num. and den. by  $\sin A$ ]

$$= \frac{\cot A - 1 + \operatorname{cosec} A}{\cot A + 1 - \operatorname{cosec} A}$$

$$= \frac{(\cot A - 1 + \operatorname{cosec} A)(\cot A + \operatorname{cosec} A)}{(\cot A + 1 - \operatorname{cosec} A)(\cot A + \operatorname{cosec} A)} \quad [\text{Multiplying and dividing by } (\cot A + \operatorname{cosec} A)]$$

$$= \frac{[(\cot A + \operatorname{cosec} A) - 1](\cot A + \operatorname{cosec} A)}{[(\cot A - \operatorname{cosec} A) + 1](\cot A + \operatorname{cosec} A)}$$

$$= \frac{[\cot A + \operatorname{cosec} A - 1](\cot A + \operatorname{cosec} A)}{(\cot A - \operatorname{cosec} A)(\cot A + \operatorname{cosec} A) + 1(\cot A + \operatorname{cosec} A)}$$

$$= \frac{[\cot A + \operatorname{cosec} A - 1](\cot A + \operatorname{cosec} A)}{[\cot^2 - \operatorname{cosec}^2 A] + (\cot A + \operatorname{cosec} A)}$$

$$= \frac{[\cot A + \operatorname{cosec} A - 1](\cot A + \operatorname{cosec} A)}{[-1 + \cot A + \operatorname{cosec} A]} \quad [\because \cot^2 A - \operatorname{cosec}^2 A = -1]$$

$$= \cot A + \operatorname{cosec} A$$

$$= \text{R.H.S.}$$