

NCERT Maths Solutions by Dev Anoop (Bathinda) Ex 8.2

$$2(ii) \frac{1 - \tan^2 45^\circ}{1 + \tan^2 45^\circ}$$

$$= \frac{1 - 1^2}{1 + 1^2}$$

$$= \frac{1 - 1}{1 + 1}$$

$$= \frac{0}{2}$$

$$= 0 \quad (D)$$

$$2(iii) \sin 2A = 2 \sin A$$

True for $A = 0^\circ$ (A)

$$2(iv) \frac{2 \tan 30^\circ}{1 - \tan^2 30^\circ}$$

$$= \frac{2 \times \frac{1}{\sqrt{3}}}{1 - \left(\frac{1}{\sqrt{3}}\right)^2}$$

$$= \frac{\frac{2}{\sqrt{3}}}{1 - \frac{1}{3}}$$

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

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

$$= \tan 60^\circ \quad (C)$$

$$3) \tan(A+B) = \sqrt{3}$$

$$\Rightarrow A+B = 60^\circ \quad [\because \tan 60^\circ = \sqrt{3}]$$

$$\tan(A-B) = \frac{1}{\sqrt{3}}$$

$$\Rightarrow A-B = 30^\circ \quad [\because \tan 30^\circ = \frac{1}{\sqrt{3}}]$$

$$\textcircled{1} + \textcircled{ii}$$

$$A+B = 60^\circ$$

$$A-B = 30^\circ$$

$$\hline 2A = 90^\circ$$

$$\Rightarrow A = 45^\circ$$

Sub $\textcircled{1}$

$$45^\circ + B = 60^\circ$$

$$\Rightarrow B = 15^\circ$$

$$\therefore A = 45^\circ, B = 15^\circ$$

$$4) \sin(A+B) = \sin A + \sin B$$

False

$$\text{let } A = 30^\circ, B = 60^\circ$$

$$\text{LHS} = \sin(30^\circ + 60^\circ)$$

$$= \sin 90^\circ$$

$$= 1$$

$$\text{RHS} = \sin 30^\circ + \sin 60^\circ$$

$$= \frac{1}{2} + \frac{\sqrt{3}}{2}$$

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

$$\therefore \text{LHS} \neq \text{RHS}$$