

Answer on Question #69292 – Math – Trigonometry

Question

Prove that

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

Solution

$$\begin{aligned} \frac{(1 + \sin A)^2 + (1 - \sin A)^2}{(\cos A)^2} &= \frac{1 + 2 \sin A + (\sin A)^2 + 1 - 2 \sin A + (\sin A)^2}{(\cos A)^2} = \\ &= \frac{2 + 2(\sin A)^2}{(\cos A)^2} = 2 \frac{1 + (\sin A)^2}{1 - (\sin A)^2} \end{aligned}$$