

Prove:

$$\begin{aligned}\sec^4 a \cdot (1 - \sin^4 a) - 2 \tan^2 a &= 1 \\ \sec^4 a \cdot (1 - \sin^2 a) \cdot (1 + \sin^2 a) - 2 \tan^2 a &= \\ &= \frac{1}{\cos^4 a} \cdot \cos^2 a \cdot (1 + \sin^2 a) - 2 \tan^2 a = \\ &= \frac{1}{\cos^2 a} \cdot (1 + \sin^2 a) - \frac{2 \sin^2 a}{\cos^2 a} = \\ &= \frac{1}{\cos^2 a} + \frac{\sin^2 a}{\cos^2 a} - \frac{2 \sin^2 a}{\cos^2 a} = \\ &= \frac{1}{\cos^2 a} - \frac{\sin^2 a}{\cos^2 a} = \\ &= \frac{(1 - \sin^2 a)}{\cos^2 a} = \\ &= \frac{\cos^2 a}{\cos^2 a} = 1 \Rightarrow \text{Proved.}\end{aligned}$$