

$$\begin{aligned}
\frac{2 \sin \theta \tan \theta (1 - \tan \theta) + 2 \sin \theta (\sec \theta)^2}{(1 - \tan \theta)^2} &= \frac{2 \frac{(\sin \theta)^2}{\cos \theta} \left(1 - \frac{\sin \theta}{\cos \theta}\right) + \frac{2 \sin \theta}{(\cos \theta)^2}}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} \\
&= \frac{\frac{2(\sin \theta)^2}{\cos \theta} - \frac{2(\sin \theta)^3}{(\cos \theta)^2} + \frac{2 \sin \theta}{(\cos \theta)^2}}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} = \frac{\frac{2(\sin \theta)^2 \cos \theta - 2(\sin \theta)^3 + 2 \sin \theta}{(\cos \theta)^2}}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} \\
&= \frac{\frac{2(\sin \theta)^2 \cos \theta + 2 \sin \theta (1 - (\sin \theta)^2)}{(\cos \theta)^2}}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} = \frac{\frac{2(\sin \theta)^2 \cos \theta + 2 \sin \theta (\cos \theta)^2}{(\cos \theta)^2}}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} \\
&= \frac{\frac{2 \sin \theta \cos \theta}{(\cos \theta)^2} (\sin \theta + \cos \theta)}{1 - 2 \frac{\sin \theta}{\cos \theta} + \left(\frac{\sin \theta}{\cos \theta}\right)^2} = \frac{\sin 2\theta (\sin \theta + \cos \theta)}{(\cos \theta)^2 - 2 \sin \theta \cos \theta + (\sin \theta)^2} \\
&= \frac{\sin 2\theta (\sin \theta + \cos \theta)}{1 - \sin 2\theta}
\end{aligned}$$