

# Verify Trig Identity

$$\frac{\sec \theta \sin \theta}{\tan \theta + \cot \theta} = \sin^2 \theta$$

Long but helpful

Numerator

$$\frac{1}{\cos \theta} \cdot \sin \theta = \tan \theta$$

Denominator

$$\frac{\sin \theta + \cos \theta}{\cos \theta \sin \theta} =$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\cos \sin} = \frac{1}{\cos \sin}$$

Now

$$\frac{\tan \theta}{\frac{1}{\cos \sin \theta}} = \text{Oops I}$$

Simplified too soon

$$\frac{\frac{\sin \theta}{\cos \theta}}{\frac{1}{\cos \theta \sin \theta}} = \frac{\sin \theta \cdot \cos \theta \sin \theta}{\cos \theta}$$

$$= \sin^2 \theta$$

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