

Example #1

Verify the identity

$$\frac{\sec^2 \theta - 1}{\sec^2 \theta} = \sin^2 \theta$$

$$\frac{\cancel{1} + \tan^2 \theta - \cancel{1}}{\sec^2 \theta} = \sin^2 \theta$$

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

$$\tan^2 \theta \cdot \frac{1}{\sec^2 \theta} = \sin^2 \theta$$

$$\frac{\sin^2 \theta}{\cancel{\cos^2 \theta}} \cdot \cancel{\cos^2 \theta} = \sin^2 \theta$$

$$\sin^2 \theta = \sin^2 \theta$$