Review

Simplify $\cos^2 x \tan^2 x + \cos^2 x$

$\cos^2 x \left(\frac{\sin^2 x}{\cos^2 x} + \cos^2 x\right)$

$\sin^2 x + \cos^2 x$

1

$\cos^2 x \sec^2 x$

$\cos^2 x \cdot \frac{1}{\cos^2 x}$

1

7.2 Verifying Trig Identities

Ex Verify that $\frac{1+\tan^2 x}{\csc x \sec x} \stackrel{?}{=} \tan x$ is an identity

$\frac{\sec^2 x}{\csc x \sec x} \stackrel{?}{=} \tan x$

$\frac{\frac{1}{\cos x}}{\frac{1}{\sin x}} \stackrel{?}{=} \tan x$ ← $\frac{1}{\cos x} \div \frac{1}{\sin x}$

$\frac{1}{\cos x} \cdot \frac{\sin x}{1}$

$\frac{\sin x}{\cos x} \stackrel{?}{=} \tan x$

$\tan x = \tan x$ ✓

Worst

① $\frac{\sin^2 x}{\cos^2 x} = \frac{\sin^2 x}{\cos^2 x}$ ✓

② $\frac{1}{\cos^2 \theta} = \frac{1}{\cos^2 \theta}$ ✓