

Verifying Trig Identities

Verify each identity. Work on the left side only. Give a reason for each step.

1) $\cot^2 x - \tan^2 x = \csc^2 x - \sec^2 x$

2) $\sin x \sec x = \tan x$

3) $\frac{\cos^2 x}{\csc x} = \frac{\sin x}{\sec^2 x}$

4) $1 - \csc x \tan^2 x = \frac{\cos^2 x - \sin x}{\cos^2 x}$

5) $\frac{1}{\tan^2 x} = \csc^2 x - 1$

6) $-\cos x \csc x = -\cot x$

$$7) \frac{\csc^2 x}{\tan x} = \frac{\cot x}{\sin^2 x}$$

$$8) \frac{\cos x}{\csc^2 x} = \frac{\sin^2 x}{\sec x}$$

$$9) \frac{\cos x + \tan x}{\sec x} = \cos^2 x + \sin x$$

$$10) \frac{1}{\sin^2 x} = \cot^2 x + 1$$

$$11) \frac{\tan^2 x}{\cos x} = \frac{\sec x}{\cot^2 x}$$

$$12) \tan x - 1 = \frac{\sin x - \cos x}{\cos x}$$