

Trigonometric Identities (Practice Problems)

1. Simplify the expression: $(\sin x + \cos x)^2 + (\sin x - \cos x)^2$

2. Simplify: $\cos x \cot x + \sin x$

3. Simplify: $\frac{\sec x + \csc x}{1 + \tan x}$

4. Simplify: $\frac{\sec x}{\cos x} - \frac{\tan x}{\cot x}$

5. Prove: $\frac{1 + \cos x}{\sin x} = \frac{\sin x}{1 - \cos x}$

6. Prove: $\sec x + \tan x + \cot x = \frac{1 + \sin x}{\cos x \sin x}$

7. What is $\frac{\cos \theta \tan \theta}{\sin \theta} - \cos^2 \theta$?

8. What is $\tan^2 \theta \cos^2 \theta + 1 - \sin^2 \theta$?

9. Simplify: $\cos x \csc x$