

Verifying Trigonometric Identities, Simplify, and Solve

1) Verify $\tan^2 x - \sin^2 x = \tan^2 x \sin^2 x$

2) Verify $\frac{\cot x - \tan x}{\sin x \cos x} = \csc^2 x - \sec^2 x$

3) Simplify $\frac{\tan x}{1 + \sec x} + \frac{1 + \sec x}{\tan x}$

4) Simplify $\frac{\tan^2 x}{1 + \tan^2 x}$

Find all Solutions

5) $3 \tan^2 x - 1 = 0$

6) $\cot x \cos^2 x = 2 \cot x$

7) **Find all solutions of $2 \cos^2 x - 5 \cos x + 2 = 0$ in the interval $[0, 2\pi)$.**