Name: _____ Date: _____

Learning Goal 6.1	Using identities to reduce complexity in expressions and solve equations.

More Questions

Pythagorean Identities

$\sin^2 x + \cos^2 x = 1$ $\tan^2 x + 1 = \sec^2 x$

$1 + \cot^2 x = \csc^2 x$

Quotient Identities

$\tan x = \frac{\sin x}{\cos x}$ $\cot x = \frac{\cos x}{\sin x}$

$\csc x = \frac{1}{\sin x}$ $\sec x = \frac{1}{\cos x}$ $\cot x = \frac{1}{\tan x}$

1. State any restrictions (non-permissible values) in radians for the following identities then simplify.

   a. $\frac{\sec x}{\tan x}$ b. $\frac{\sin x + \tan x}{1 + \cos x}$ c. $\frac{\csc x - \sin x}{\cot x}$

2. Prove $\tan^2 x + 1 = \sec^2 x$.