C12 - 6.3 - Proofs Pythag Reciprocal Fractions Notes

$\tan x \csc x = \sec x$

$\left(\frac{\sin x}{\cos x}\right)\left(\frac{1}{\sin x}\right)$

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

$\sec x$

$\frac{\cot x}{\csc x} = \cos x$

$\frac{\left(\frac{\cos x}{\sin x}\right)}{\left(\frac{1}{\sin x}\right)}$

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

$\cos x$

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

$1 + \frac{\sin^2 x}{\cos^2 x}$

$\frac{\cos^2 x}{\cos^2 x} + \frac{\sin^2 x}{\cos^2 x}$

$\frac{\cos^2 x + \sin^2 x}{\cos^2 x}$

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

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

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

$\frac{1}{\sin x} \times \cos^2 x + \sin x$

$\frac{\cos^2 x}{\sin x} + \sin x \times \frac{\sin x}{\sin x}$

$\frac{\cos^2 x}{\sin x} + \frac{\sin^2 x}{\sin x}$

$\frac{\cos^2 x + \sin^2 x}{\sin x}$

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

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

$\cot x + \tan x = \csc x \sec x$

$\frac{\cos x}{\sin x} + \frac{\sin x}{\cos x}$

$\frac{\cos^2 x + \sin^2 x}{\sin x \cos x}$

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

$\left(\frac{1}{\sin x}\right)\left(\frac{1}{\cos x}\right)$

$\csc x \sec x$

$\csc x \sec x$

$\frac{1 + \cos x}{1 + \sec x} = \cos x$

$\left(\frac{1 + \cos x}{1 + \frac{1}{\cos x}}\right)$

$\frac{(1 + \cos x)}{\left(\frac{\cos x + 1}{\cos x}\right)}$

$(1 + \cos x) \times \frac{\cos x}{\cos x + 1}$

$\frac{\cos x(1 + \cos x)}{\cos x + 1}$

$\cos x$

$\cos x$