

First let's learn how to simplify trig expressions:

1. A) Write in terms of sine and cosine

$$\frac{\cot \theta}{\csc \theta}$$

B) Show $\frac{\cos \theta}{1 + \sin \theta} = \frac{1 - \sin \theta}{\cos \theta}$ by

multiplying the fraction by $1 - \sin \theta$

C) Get a common denominator

$$\frac{1 + \sin u}{\sin u} + \frac{\cot u - \cos u}{\cos u}$$

D) By Factoring

$$\frac{\sin^2 u - 1}{\tan u \sin u - \tan u}$$

Show the steps to transform the left side to the right side as shown.

2. $\csc \theta \cdot \tan \theta$ to $\sec \theta$

3. $\sec x - \cos x$ to $\sin x \tan x$

4. $(\sec \theta - 1)(\sec \theta + 1)$ to $\tan^2 \theta$

5. $\frac{1 - \cos^2 x}{\tan x}$ to $\sin x \cos x$

6. $\frac{\csc \theta}{\cos \theta} - \frac{\cos \theta}{\sin \theta}$ to $\tan \theta$