



Prove the following identities:

$$\cos a + \frac{\sin^2 a}{\cos a} = \frac{1}{\cos a}$$

$$\tan x + \frac{\cos x}{\sin x} = \frac{1}{\sin x \cos x}$$

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

$$\frac{\tan^2 x}{1+\tan^2 x} = \sin^2 x$$

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

$$\cos^2 x (\tan^2 x + 2) = 2 - \sin^2 x$$

$$\frac{\cos \beta}{\tan \beta} + \sin \beta = \frac{1}{\sin \beta}$$

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

$$\frac{\cos^4 x - \sin^4 x}{\cos x + \sin x} = \cos x - \sin x$$

$$\frac{\tan x - \sin x \cos x}{\sin^2 x} = \tan x$$