

Having an Identity Crisis??

Prove the following Identities with complete solutions.

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

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

$$3. \cos^2 x + \frac{\sin x \cos x}{\tan x} = 2 \cos^2 x$$

$$4. 1 + \tan^2 x = \frac{1}{\cos^2 x}$$

$$5. (1 - \cos^2 x)(1 + \tan^2 x) = \tan^2 x$$

$$6. (\sin x - \cos x)(\sin x + \cos x) = 2\sin^2 x - 1$$

$$7. \frac{\sin x}{1 - \cos x} - \frac{1 + \cos x}{\sin x} = 0$$