

6.6 Trig Identities

A trig identity is an equation that is always true. $x + 2x = 3x$ is an identity. Since trig functions have many different interactions, it's possible to have different seeming forms that are actually equal to each other.

Basic Trig Identities:

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

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

Note that because these identities are true, any rearrangements are also true.

Prove the following:

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

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

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

Hmk on mathcha