

Trigonometric Relations

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

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

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

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

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

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

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

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

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

$$\sin^2 x + \cos^2 x = 1$$

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

$$1 + \cot^2 x = \csc^2 x$$