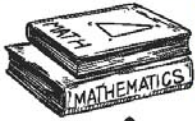


Name :

Class :



Trigonometric Identities



A Trigonometric Identity is an equation involving the trigonometric functions that holds for all values of the variable.

Trigonometric Identities

Reciprocal Identities

$$\begin{aligned} \csc \theta &= \frac{1}{\sin \theta} \\ \sec \theta &= \frac{1}{\cos \theta} \\ \cot \theta &= \frac{1}{\tan \theta} \end{aligned}$$

Pythagorean Identities

$$\begin{aligned} \sin^2 \theta + \cos^2 \theta &= 1 \\ \sec^2 \theta &= 1 + \tan^2 \theta \\ \csc^2 \theta &= 1 + \cot^2 \theta \end{aligned}$$

Half-Angle Formulas

$$\begin{aligned} \sin\left(\frac{\theta}{2}\right) &= \pm \sqrt{\frac{1 - \cos \theta}{2}} \\ \cos\left(\frac{\theta}{2}\right) &= \pm \sqrt{\frac{1 + \cos \theta}{2}} \\ \tan\left(\frac{\theta}{2}\right) &= \frac{1 - \cos \theta}{\sin \theta} \end{aligned}$$



Find the values using Quotient Identities

1) If $\sin x = \frac{3}{5}$ and $\cos x = \frac{4}{5}$ find the $\tan x$

$$\tan x = \frac{3}{4}$$

2) If $\tan x = \frac{4}{5}$ and $\cos x = \frac{3}{5}$ find the $\sin x$

$$\sin x = \frac{12}{15}$$

3) If $\tan x = \frac{3}{5}$ and $\sin x = \frac{4}{5}$ find the $\cos x$

$$\cos x = \frac{4}{3}$$

4) If $\sin x = \frac{3}{5}$ and $\cot x = \frac{4}{5}$ find the $\cos x$

$$\cos x = \frac{12}{25}$$

5) If $\sin x = \frac{3}{5}$ and $\cos x = \frac{4}{5}$ find the $\cot x$

$$\cot x = \frac{4}{3}$$

6) If $\cos x = 3$ and $\cot x = 4$ find the $\sin x$

$$\cos x = \frac{3}{4}$$