

Name :

Class :

Trigonometric Expressions



A trigonometric expression is a mathematical expression that involves trigonometric functions, such as: Sine (sin) Cosine (cos) Tangent (tan) Cotangent (cot) Secant (sec) Cosecant (csc).

Sine	Sin	$\sin \angle B = \frac{\text{Opposite}}{\text{Hypotenuse}}$
Cosine	Cos	$\cos \angle B = \frac{\text{Adjacent}}{\text{Hypotenuse}}$
Tangent	Tan	$\tan \angle B = \frac{\text{Opposite}}{\text{Adjacent}}$
Secant	Sec	$\sec \angle B = \frac{\text{Hypotenuse}}{\text{Adjacent}}$
Cosecant	Csc	$\csc \angle B = \frac{\text{Hypotenuse}}{\text{Opposite}}$
Cotangent	Cot	$\cot \angle B = \frac{\text{Adjacent}}{\text{Opposite}}$

Simplify the following trigonometric expression.

1)
$$\frac{\cos^2 t - 1}{\sin^2 t - 1}$$



2)

$$\frac{2 \sin t \cos t + (\sin t - \cos t)^2}{\sec t}$$



3)
$$\cos t \csc t (\sec^2 t - 1)$$



4)
$$\frac{\sin t (1 + \sin t)}{1 - \cos^2 t} - 1$$



5)
$$\frac{1 - \tan^2 t}{1 + \tan^2 t} + 1$$



6)
$$\frac{1 + \tan^2 t + \sec^2 t \cot^2 t}{\csc^2 t + \cot^2 t \csc^2 t}$$

