

6.4 Sum and Difference Identities

$$\sin(A + B) = \sin A \cos B + \cos A \sin B$$

$$\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

$$\sin(A - B) = \sin A \cos B - \cos A \sin B$$

$$\cos(A + B) = \cos A \cos B - \sin A \sin B$$

$$\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

$$\cos(A - B) = \cos A \cos B + \sin A \sin B$$

Find the exact value of the following angles:

$$\tan 15^\circ$$

$$\cos \frac{7\pi}{12}$$

Find the exact value of $\frac{\cos(-10^\circ)}{\sec 35^\circ} + \frac{\sin 35^\circ}{\csc(-10^\circ)}$

Given that $\sin A = \frac{3}{5}$ is in Quadrant I, and $\sec B = -\frac{13}{5}$ is in Quadrant II, what is the value of $\cos(A + B)$?

Solve the equation over the interval $0 \leq x < 2\pi$
 $\sin 5x \cos 3x - \cos 5x \sin 3x = 1$

Find the amplitude, period, and phase shift for $y = 5 \sin \frac{\pi}{3} x \sin \frac{\pi}{4} - 5 \cos \frac{\pi}{3} x \cos \frac{\pi}{4}$