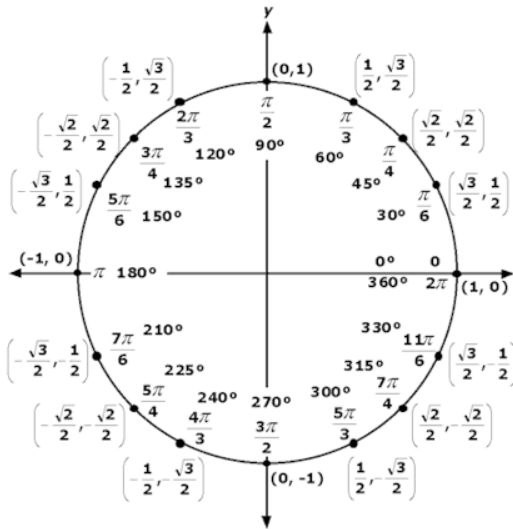


TRIGONOMETRY

Degrees and Radians

$$180^\circ = \pi$$

The Unit Circle



$$P(\theta) = (\cos\theta, \sin\theta)$$

Trigonometric Functions

$$F(x) = a \sin b(x - h) + k$$

OR

$$F(x) = a \cos b(x - h) + k$$

Amplitude: $A = |a|$

$$\text{Period: } p = \frac{2\pi}{|b|}$$

Phase Shift: $D = h$

Central Axis: $y = k$

Trigonometric Identities

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

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

$$\tan x = \frac{1}{\cot x} \quad \cot x = \frac{1}{\tan x}$$

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

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

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

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

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

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

$$\sin(2A) = 2 \sin A \cos A$$

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

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

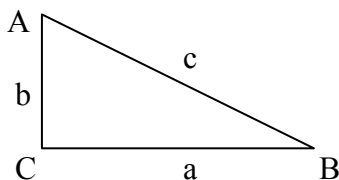
$$\cos(2A) = \cos^2 A - \sin^2 A$$

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

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

$$\tan(2A) = \frac{2 \tan A}{1 - \tan^2 A}$$

Trigonometric Ratios



$$\sin B = \frac{\text{opp}}{\text{hyp}} = \frac{b}{c} \quad \sec B = \frac{\text{hyp}}{\text{adj}} = \frac{c}{a}$$

$$\cos B = \frac{\text{adj}}{\text{hyp}} = \frac{a}{c} \quad \csc B = \frac{\text{hyp}}{\text{opp}} = \frac{c}{b}$$

$$\tan B = \frac{\text{opp}}{\text{adj}} = \frac{b}{a} \quad \cot B = \frac{\text{adj}}{\text{opp}} = \frac{a}{b}$$