

Fundamental Trigonometric Identities

Reciprocal Identities

$$\begin{array}{lll} \sin u = \frac{1}{\csc u} & \cos u = \frac{1}{\sec u} & \tan u = \frac{1}{\cot u} \\ \csc u = \frac{1}{\sin u} & \sec u = \frac{1}{\cos u} & \cot u = \frac{1}{\tan u} \end{array}$$

Quotient Identities

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

Pythagorean Identities

$$\sin^2 u + \cos^2 u = 1 \quad \tan^2 u + 1 = \sec^2 u \quad 1 + \cot^2 u = \csc^2 u$$

Odd Trigonometric Functions

$$\begin{array}{lll} \sin u & \tan u & \sin^{-1} u \\ \csc u & \cot u & \tan^{-1} u \end{array}$$

Even Trigonometric Functions

$$\cos u \quad \sec u$$

Cofunction Identities

$$\begin{array}{ll} \sin(90^\circ - u) = \cos u & \cos(90^\circ - u) = \sin u \\ \tan(90^\circ - u) = \cot u & \cot(90^\circ - u) = \tan u \\ \sec(90^\circ - u) = \csc u & \csc(90^\circ - u) = \sec u \end{array}$$