

Derivative Formulas

$$\frac{d}{dx}(\arcsin u) = \frac{u'}{\sqrt{1-u^2}}$$

$$\frac{d}{dx}(\arctan)u = \frac{u'}{1+u^2}$$

$$\frac{d}{dx}(\csc u) = -(\csc u \cot u)u'$$

Trigonometric Identities

$$\sin^2 x = \frac{1}{2} - \frac{1}{2} \cos 2x$$

$$\cos^2 x = \frac{1}{2} + \frac{1}{2} \cos 2x$$

Integration Formulas

$$\int \tan u \, du = \ln |\sec u| + C$$

$$\int \cot u \, du = \ln |\sin u| + C$$

$$\int \sec u \, du = \ln |\sec u + \tan u| + C$$

$$\int \csc u \, du = \ln |\csc u - \cot u| + C$$

$$\int \sec u \tan u \, du = \sec u + C$$

$$\int \csc u \cot u \, du = -\csc u + C$$

$$\int \frac{1}{\sqrt{a^2-u^2}} \, du = \arcsin \frac{u}{a} + C$$

$$\int \frac{1}{a^2+u^2} \, du = \frac{1}{a} \arctan \frac{u}{a} + C$$