

Table of Integrals - Trigonometric Functions
 (Note: '+ C' is omitted.)

$$\int \sin ax \, dx = -\frac{1}{a} \cos ax$$

$$\int \cos ax \, dx = \frac{1}{a} \sin ax$$

$$\int \tan ax \, dx = \int \frac{\sin ax}{\cos ax} \, dx = -\frac{1}{a} \ln |\cos ax| \quad \left(= \frac{1}{a} \ln |\sec ax| \right)$$

$$\int \cot ax \, dx = \int \frac{\cos ax}{\sin ax} \, dx = \frac{1}{a} \ln |\sin ax|$$

$$\int \sec ax \, dx = \frac{1}{a} \ln |\sec ax + \tan ax|$$

$$\int \sec ax \, dx = \frac{1}{a} \ln \left| \frac{1 + \tan \frac{ax}{2}}{1 - \tan \frac{ax}{2}} \right|$$

$$\int \csc ax \, dx = \frac{1}{a} \ln |\csc ax - \cot ax| \quad \left(= -\frac{1}{a} \ln |\csc ax + \cot ax| \right)$$

$$\int \csc ax \, dx = \frac{1}{a} \ln \left| \tan \frac{ax}{2} \right|$$

$$\int \sin^2 ax \, dx = \int \frac{1}{2} (1 - \cos 2ax) \, dx = \frac{1}{2} \left(x - \frac{1}{2a} \sin 2ax \right)$$

$$\int \cos^2 ax \, dx = \int \frac{1}{2} (1 + \cos 2ax) \, dx = \frac{1}{2} \left(x + \frac{1}{2a} \sin 2ax \right)$$

$$\int \tan^2 ax \, dx = \int (\sec^2 ax - 1) \, dx = \frac{1}{a} \tan ax - x$$

$$\int \cot^2 ax \, dx = \int (\csc^2 ax - 1) \, dx = -\frac{1}{a} \cot ax - x$$

$$\int \sec^2 ax \, dx = \frac{1}{a} \tan ax$$

$$\int \csc^2 ax \, dx = -\frac{1}{a} \cot ax$$

$$I_n = \int \sin^n ax \, dx \quad \Rightarrow \quad I_n = \frac{n-1}{n} I_{n-2} - \frac{1}{na} \sin^{n-1} ax \cdot \cos ax$$

$$I_n = \int \cos^n ax \, dx \quad \Rightarrow \quad I_n = \frac{n-1}{n} I_{n-2} + \frac{1}{na} \cos^{n-1} ax \cdot \sin ax$$

$$I_n = \int \tan^n ax \, dx \quad \Rightarrow \quad I_n = \frac{1}{(n-1)a} \tan^{n-1} ax - I_{n-2}$$

$$I_n = \int \sec^n ax \, dx \quad \Rightarrow \quad I_n = \frac{1}{(n-1)a} \sec^{n-2} ax \cdot \tan ax + \frac{n-2}{n-1} I_{n-2}$$