Table of Integrals

$$\int x^n\,dx=\frac{x^{n+1}}{n+1}+C$$

$$\int \frac{dx}{x}=\ln|x|+C$$

$$\int e^x\,dx=e^x+C$$

$$\int a^x\,dx=\frac{a^x}{\ln a}+C$$

$$\int \cos x\,dx=\sin x+C$$

$$\int \sin x\,dx=-\cos x+C$$

$$\int \frac{dx}{\sin^2 x}=-\operatorname{ctg} x+C$$

$$\int \frac{dx}{\cos^2 x}=\operatorname{tg} x+C$$

$$\int \frac{dx}{\sqrt{a^2-x^2}}=\arcsin\frac{x}{a}+C$$

$$\int \frac{dx}{1+x^2}=\operatorname{arctg} x+C$$

$$\int \frac{dx}{x^2-a^2}=\frac{1}{2\mathrm{a}}\ln\left|\frac{x-a}{x+a}\right|+C$$

$$\int \frac{dx}{\sqrt{x^2\pm a}}=\ln\left|x+\sqrt{x^2\pm a}\right|+C$$

$$\int \operatorname{sh} x\,dx=\operatorname{ch} x+C$$

$$\int \operatorname{ch} x=\operatorname{sh} x+C$$

$$\int \frac{dx}{x^2+a^2}=\frac{1}{a}\operatorname{arctg}\frac{x}{a}+C$$

$$\int \frac{dx}{\sqrt{x^2+px+q}}=\ln\left|x+\frac{p}{2}+\sqrt{x^2+px+q}\right|+C$$

$$\int \sqrt{a^2-x^2}\,dx=\frac{x}{2}\sqrt{a^2-x^2}+\frac{a^2}{2}\arcsin\frac{x}{a}+C$$

$$\int \sqrt{x^2\pm a^2}\,dx=\frac{x}{2}\sqrt{x^2\pm a^2}\pm\frac{a^2}{2}\ln\left|x+\sqrt{x^2\pm a^2}\right|+C$$

Table of Derivatives

$$\frac{d}{dx}x^n=nx^{n-1}$$

$$\frac{d}{dx}e^x=e^x$$

$$\frac{d}{dx}a^x=a^x\ln a$$

$$\frac{d}{dx}\sin x=\cos x$$

$$\frac{d}{dx}\cos x=-\sin x$$

$$\frac{d}{dx}\operatorname{tg} x=\frac{1}{\cos^2 x}$$

$$\frac{d}{dx}\operatorname{ctg} x=-\frac{1}{\sin^2 x}$$

$$\frac{d}{dx}\ln x=\frac{1}{x}$$

$$\frac{d}{dx}\arcsin x=\frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}\arccos x=-\frac{1}{\sqrt{1-x^2}}$$

$$\frac{d}{dx}\operatorname{arctg} x=\frac{1}{1+x^2}$$

$$\frac{d}{dx}\operatorname{sh} x=\operatorname{ch} x$$

$$\frac{d}{dx}\operatorname{ch} x=\operatorname{sh} x$$