基本积分表

$$\int k\,dx = kx + C$$

$$\int x^{\mu}\,dx = \frac{1}{\mu+1}x^{\mu+1} + C(\mu \neq -1)$$

$$\int \frac{1}{x}\,dx = \ln|x| + C$$

$$\int \frac{1}{1+x^2}\,dx = \arctan x + C = -\operatorname{arccot} x + C$$

$$\int \frac{1}{\sqrt{1-x^2}}\,dx = \arcsin x + C = -\arccos x + C$$

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

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

$$\int \frac{1}{\cos^2 x}\,dx = \int \sec^2 x\,dx = \tan x + C$$

$$\int \frac{1}{\sin^2 x}\,dx = \int \csc^2 x\,dx = -\cot x + C$$

$$\int \sec x \tan x\,dx = \sec x + C$$

$$\int \csc x \cot x\,dx = -\csc x + C$$

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

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

$$\int \ln x\,dx = x\ln x - x + C$$

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

$$\int \sinh x\,dx = \cosh x + C$$

$$\int \cosh x\,dx = \sinh x + C$$

$$\int \tanh x\,dx = \ln(\cosh x) + C$$

$$\int \tan x\,dx = -\ln|\cos x| + C = \ln|\sec x| + C$$

$$\int \cot x\,dx = \ln|\sin x| + C = -\ln|\csc x| + C$$

$$\int \sec x\,dx = \ln|\sec x + \tan x| + C$$

$$\int \csc x\,dx = \ln|\csc x - \cot x| + C$$

$$\int \arcsin x\,dx = x\arcsin x + \sqrt{1-x^2} + C$$

$$\int \arccos x\,dx = x\arccos x - \sqrt{1-x^2} + C$$

$$\int \arctan x\,dx = x\arctan x - \frac{1}{2}\ln(1+x^2) + C$$

$$\int \operatorname{arccot} x\,dx = x\operatorname{arccot} x + \frac{1}{2}\ln(1+x^2) + C$$

$$\int \operatorname{arsh} x\,dx = x\operatorname{arsh} x - \sqrt{x^2+1} + C$$

$$\int \operatorname{arch} x\,dx = x\operatorname{arch} x - \sqrt{x^2-1} + C$$

$$\int \operatorname{arth} x\,dx = (1+x)\ln(1+x) + (1-x)\ln(1-x) + C$$

$$\int \frac{1}{a^2+x^2}\,dx = \frac{1}{a}\arctan\frac{x}{a} + C$$

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

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

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

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

$$\int \frac{1}{\sqrt{x^2+a^2}}\,dx = \operatorname{arsh}\frac{x}{a} = \ln\left(x+\sqrt{x^2+a^2}\right) + C$$

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

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

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