Formulario de Integrales Indefinidas

Una selección de integrales fundamentales y avanzadas para cálculo. Recuerde siempre añadir la constante de integración $+C$.

Reglas Básicas y Potencias

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

$$\int x^n\,dx = \frac{x^{n+1}}{n+1} + C \quad (\text{para } n \neq -1)$$

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

Exponenciales y Logarítmicas

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

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

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

Funciones Hiperbólicas

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

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

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

$$\int \coth x\,dx = \ln|\sinh x| + C$$

Funciones Trigonométricas

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

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

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

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

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

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

$$\int \sec^2 x\,dx = \tan x + C$$

$$\int \csc^2 x\,dx = -\cot x + C$$

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

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

Formas de Integración Inversa

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

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

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

Fórmulas Adicionales y de Reducción

$$\int \tan^2 x\,dx = \tan x - x + C$$

$$\int \cot^2 x\,dx = -\cot x - x + C$$

$$\int \operatorname{sech} x\,dx = \arctan(\sinh x) + C$$

$$\int \operatorname{csch} x\,dx = \ln\left|\tanh \tfrac{x}{2}\right| + C$$

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

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

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

$$\int \sin^2 x\,dx = \tfrac{x}{2} - \tfrac{\sin(2x)}{4} + C$$

$$\int \cos^2 x\,dx = \tfrac{x}{2} + \tfrac{\sin(2x)}{4} + C$$

$$\int \ln^n x\,dx = x\ln^n x - n\int \ln^{n-1} x\,dx$$

$$\int \sin^n x\,dx = -\tfrac{\sin^{n-1} x\cos x}{n} + \tfrac{n-1}{n}\int \sin^{n-2} x\,dx$$

$$\int \cos^n x\,dx = \tfrac{\cos^{n-1} x\sin x}{n} + \tfrac{n-1}{n}\int \cos^{n-2} x\,dx$$