Tabla de Integrales

Integral de Función

$$\int[f(x)+g(x)]dx=\int[f(x)]dx+\int[g(x)]dx+K$$

$$\int[f(x)\cdot g(x)]dx\neq\int[f(x)]dx\cdot\int[g(x)]dx$$

$$\int k\cdot f(x)\,dx=k\cdot\int f(x)$$

$$\int C\cdot dx=Cx+K$$

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

$$\int\frac{dx}{x}=Lx+k$$

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

$$\int(\ln x)^2\,dx=x(\ln x)^2-2x\ln x+2x$$

$$\int(\ln x)^n\,dx=x(\ln x)^n-n\int(\ln x)^{n-1}dx \qquad (\text{para } n\neq 1)$$

$$\int\frac{dx}{\ln x}=\ln|\ln x|+\ln x+\sum_{i=2}^{\infty}\frac{(\ln x)^i}{i\cdot i!}$$

$$\int\frac{dx}{(\ln x)^n}=-\frac{x}{(n-1)(\ln x)^{n-1}}+\frac{1}{n-1}\int\frac{dx}{(\ln x)^{n-1}} \qquad (\text{para } n\neq 1)$$

$$\int x^m\ln x\,dx=x^{m+1}\left(\frac{\ln x}{m+1}-\frac{1}{(m+1)^2}\right) \qquad (\text{para } m\neq 1)$$

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

$$\int\frac{(\ln x)^n\,dx}{x}=\frac{(\ln x)^{n+1}}{n+1} \qquad (\text{para } n\neq 1)$$

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

$$\int\sin(\ln x)\,dx=\frac{x}{2}(\sin(\ln x)-\cos(\ln x))$$

$$\int\cos(\ln x)\,dx=\frac{x}{2}(\sin(\ln x)+\cos(\ln x))$$

$$\int\frac{dx}{x(\ln x)^n}=-\frac{1}{(n-1)(\ln x)^{n-1}} \qquad (\text{para } n\neq 1)$$

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

$$\int a^x\,dx=\frac{a^x}{La}+K$$

$$\int a^x\,dx=\frac{a^x}{La}+K \quad\Rightarrow\quad \int e^x\,dx=e^x+K$$

$$\int e^{cx}\,dx=\frac{1}{c}e^{cx}$$

$$\int xe^{cx}\,dx=\frac{e^{cx}}{c^2}(cx-1)$$

$$\int x^2e^{cx}\,dx=e^{cx}\left(\frac{x^2}{c}-\frac{2x}{c^2}+\frac{2}{c^3}\right)$$

$$\int x^ne^{cx}\,dx=\frac{1}{c}x^ne^{cx}-\frac{n}{c}\int x^{n-1}e^{cx}dx$$

$$\int e^{cx}\ln x\,dx=\frac{1}{c}\left(e^{cx}\ln|x|-\int\frac{e^{cx}dx}{x}\right)$$

$$\int e^{cx}\sin bx\,dx=\frac{e^{cx}}{c^2+b^2}(c\sin bx-b\cos bx)$$

$$\int e^{cx}\cos bx\,dx=\frac{e^{cx}}{c^2+b^2}(c\cos bx+b\sin bx)$$

$$\int\frac{1}{\sigma\sqrt{2\pi}}e^{-(x-\mu)^2/2\sigma^2}=\frac{1}{2\sigma}(1+\operatorname{erf}\frac{x-\mu}{\sigma\sqrt{(2)}})$$

$$\int\sin x=-\cos x+K$$

$$\int\sin cx\,dx=-\frac{1}{c}\cos cx$$

$$\int\sin^n cx\,dx=-\frac{\sin^{n-1}cx\cos cx}{nc}+\frac{n-1}{n}\int\sin^{n-2}cx\,dx \qquad (\text{para } n>0)$$

$$\int x\sin cx\,dx=\frac{\sin cx}{c^2}-\frac{x\cos cx}{c}$$

$$\int x^n\sin cx\,dx=-\frac{x^n}{c}\cos cx+\frac{n}{c}\int x^{n-1}\cos cx\,dx \qquad (\text{para } n>0)$$

$$\int\frac{dx}{\sin cx}=\frac{1}{c}\left|\tan\frac{cx}{2}\right|$$

$$\int\frac{dx}{\sin^n cx}=\frac{\cos cx}{c(n-1)\sin^{n-1}cx}+\frac{n-2}{n-1}\int\frac{dx}{\sin^{n-2}cx} \qquad (\text{para } n>1)$$

$$\int\frac{dx}{1\pm\sin cx}=\frac{1}{c}\tan\left(\frac{cx}{2}\mp\frac{\pi}{4}\right)$$

$$\int\frac{\sin cx\,dx}{1\pm\sin cx}=\pm x+\frac{1}{c}\tan\left(\frac{pi}{4}\mp\frac{cx}{2}\right)$$

$$\int\sin c_1x\sin c_2x\,dx=\frac{\sin(c_1-c_2)x}{2(c_1-c_2)}-\frac{\sin(c_1+c_2)x}{2(c_1+c_2)} \qquad (\text{para } |c_1|\neq|c_2|)$$

$$\int\cos x\,dx=\operatorname{sen}x+K$$

$$\int\cos cx\,dx=\frac{1}{c}\sin cx$$

$$\int\cos^n cx\,dx=-\frac{\cos^{n-1}cx\sin cx}{nc}+\frac{n-1}{n}\int\cos^{n-2}cx\,dx \qquad (\text{para } n>0)$$

$$\int x\cos cx\,dx=\frac{\cos cx}{c^2}+\frac{x\sin cx}{c}$$

$$\int x^n\cos cx\,dx=\frac{x^n\sin cx}{c}-\frac{n}{c}\int x^{n-1}\sin cx\,dx$$

$$\int\frac{dx}{\cos cx}=\frac{1}{c}\ln\left|\tan\left(\frac{cx}{2}+\frac{\pi}{4}\right)\right|$$

$$\int\frac{dx}{\cos^2 x}=\int(1+\tan^2 x)dx=\tan x+K$$

$$\int\frac{dx}{\cos^n cx}=\frac{\sin cx}{c(n-1)\cos^{n-1}cx}+\frac{n-2}{n-1}\int\frac{dx}{\cos^{n-2}cx} \qquad (\text{para } n>1)$$

$$\int\frac{dx}{1+\cos cx}=\frac{1}{c}\tan\frac{cx}{2}$$

$$\int\frac{dx}{1-\cos cx}=-\frac{1}{c}\cot\frac{cx}{2}$$

$$\int\frac{x\,dx}{1+\cos cx}=\frac{x}{c}\tan cx2+\frac{2}{c^2}\ln\left|\cos\frac{cx}{2}\right|$$

$$\int\frac{\cos cx\,dx}{1+\cos cx}=x-\frac{1}{c}\tan\frac{cx}{2}$$

$$\int\frac{\cos cx\,dx}{1-\cos cx}=-x-\frac{1}{c}\cot\frac{cx}{2}$$

$$\int\tan x\,dx=-L|\cos x|+k$$

$$\int\tan cx\,dx=-\frac{1}{c}\ln|\cos cx|$$

$$\int\tan^n cx\,dx=\frac{1}{c(n-1)}\tan^{n-1}cx-\int\tan^{n-2}cx\,dx \qquad (\text{para } n\neq 1)$$

$$\int\frac{dx}{\tan cx+1}=\frac{x}{2}+\frac{1}{2c}\ln|\sin cx+\cos cx|$$

$$\int \frac{dx}{\tan cx - 1} = -\frac{x}{2} + \frac{1}{2c}\ln|\sin cx - \cos cx|$$

$$\int \frac{\tan cx\; dx}{\tan cx + 1} = \frac{x}{2} - \frac{1}{2c}\ln|\sin cx + \cos cx|$$

$$\int \frac{\tan cx\; dx}{\tan cx - 1} = \frac{x}{2} + \frac{1}{2c}\ln|\sin cx - \cos cx|$$

$$\int \cot cx\; dx = \frac{1}{c}\ln|\sin cx|$$

$$\int \cot cx\; dx = \frac{1}{c}\ln|\sin cx|$$

$$\int \cot^n cx\; dx = -\frac{1}{c(n-1)}\cot^{n-1} cx - \int \cot^{n-2} cx\; dx \qquad \text{(para)} n \neq 1)$$

$$\int \frac{dx}{1 + \cot cx} = \int \frac{\tan cx\; dx}{\tan cx + 1}$$

$$\int \frac{dx}{1 - \cot cx} = \int \frac{\tan cx\; dx}{\tan cx - 1}$$

$$\int \frac{dx}{\cos cx \pm \sin cx} = \frac{1}{c\sqrt{2}}\ln\left|\tan\left(\frac{cx}{2} \pm \frac{\pi}{8}\right)\right|$$

$$\int \frac{\sin cx\; dx}{\cos cx + \sin cx} = \frac{x}{2} - \frac{1}{2c}\ln|\sin cx + \cos cx|$$

$$\int \sin cx \cos cx\; dx = \frac{1}{2c}\sin^2 cx$$

$$\int \sin^n cx \cos cx\; dx = \frac{1}{c(n+1)}\sin^{n+1} cx \qquad (\text{para } n \neq 1)$$

$$\int \sin cx \cos^n cx\; dx = -\frac{1}{c(n+1)}\cos^{n+1} cx \qquad (\text{para } n \neq 1)$$

$$\int \frac{dx}{\sin cx \cos cx} = \frac{1}{c}\ln|\tan cx|$$

$$\int \frac{\sin^n cx\; dx}{\cos cx} = -\frac{\sin^{n-1} cx}{c(n-1)} + \int \frac{\sin^{n-2} cx\; dx}{\cos cx} \qquad (\text{for } n \neq 1)$$

$$\int \frac{\sin^n cx\; dx}{\cos^m cx} = \frac{\sin^{n-1} cx}{c(m-1)\cos^{m-1} cx} - \frac{n-1}{n-1}\int \frac{\sin^{n-1} cx\; dx}{\cos^{m-2} cx} \qquad (\text{para } m \neq 1)$$

$$\int \sin cx \tan cx\; dx = \frac{1}{c}(\ln|\sec cx + \tan cx| - \sin cx)$$

$$\int \frac{\tan^n cx\; dx}{\sin^2 cx} = \frac{1}{c(n-1)}\tan^{n-1}(cx) \qquad (\text{para } n \neq 1)$$

$$\int \frac{\tan^n cx\; dx}{\cos^2 cx} = \frac{1}{c(n+1)}\tan^{n+1} cx \qquad (\text{para } n \neq 1)$$

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

$$\int x\arcsin\frac{x}{c}\, dx = \left(\frac{x^2}{2} - \frac{c^2}{4}\right)\arcsin\frac{x}{c} + \frac{x}{4}\sqrt{c^2 - x^2}$$

$$\int \arccos\frac{x}{c}\, dx = x\arccos\frac{x}{c} - \sqrt{c^2 - x^2}$$

$$\int x\arccos\frac{x}{c}\, dx = \left(\frac{x^2}{2} - \frac{c^2}{4}\right)\arccos\frac{x}{c} - \frac{x}{4}\sqrt{c^2 - x^2}$$

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

$$\int x\arctan\frac{x}{c}\, dx = \frac{c^2 + x^2}{2}\arctan\frac{x}{c} - \frac{cx}{2}$$

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

$$\int x\operatorname{arccot}\frac{x}{c}\, dx = \frac{c^2 + x^2}{2}\operatorname{arccot}\frac{x}{c} + \frac{cx}{2}$$

$$\int \frac{dx}{x^2+1}dx = arc\ tan\, x + k$$

$$\int (ax+b)^n dx = \frac{1}{a}\int (ax+b)^n a dx = \frac{1}{a}\frac{(ax+b)^{n+1}}{n+1} \qquad (\text{para } n \neq -1)$$

$$\int \frac{dx}{ax+b} = \frac{1}{a}\int (ax+b)^{-1} a dx = \frac{1}{a}\ln|ax+b|$$

$$\int \frac{dx}{ax+b} = \frac{1}{a}\int (ax+b)^{-1} a dx = \frac{1}{a}\ln|ax+b|$$

$$\int \frac{x\; dx}{ax+b} = \frac{x}{a} - \frac{b}{a^2}\ln|ax+b|$$

$$\int \frac{x\; dx}{(ax+b)^2} = \frac{b}{a^2(ax+b)} + \frac{1}{a^2}\ln|ax+b|$$

$$\int \frac{dx}{x(ax+b)} = -\frac{1}{b}\ln\left|\frac{ax+b}{x}\right|$$

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

$$\int \frac{dx}{x^2-a^2} = -\frac{1}{a}\operatorname{artanh}\frac{x}{a} = \frac{1}{2a}\ln\frac{a-x}{a+x} \qquad (\text{para } |x| < |a|)$$

$$\int \frac{dx}{x^2-a^2} = -\frac{1}{a}\operatorname{arcoth}\frac{x}{a} = \frac{1}{2a}\ln\frac{x-a}{x+a} \qquad (\text{para } |x| > |a|)$$

INTEGRALES DE INTERES

$$\int \frac{dx}{x^2+1}dx = arc\ tan\, x + k$$

$$\int \frac{dx}{\sqrt{1-x^2}} = arc\ \text{sen}\, x + K$$

$$\int \frac{dx}{\sqrt{1+x^2}} = L\left|x + \sqrt{x^2+1}\right| + K$$

$$\int \frac{dx}{\sqrt{x^2-1}} = L\left|x + \sqrt{x^2-1}\right| + K$$