TABLE OF INTEGRALS

[1] $$\int x^n dx = \frac{1}{n+1} x^{n+1} + c, \quad n \neq -1$$

[2] $$\int \frac{dx}{x} = \ln|x| + c$$

[3] $$\int e^x \, dx = e^x + c$$

[4] $$\int \sin x \, dx = -\cos x + c$$

[5] $$\int \cos x \, dx = \sin x + c$$

[6] $$\int \tan x \, dx = \ln|\sec x| + c$$

[7] $$\int \sec^2 x \, dx = \tan x + c$$

[8] $$\int \operatorname{cosec}^2 x \, dx = -\cot x + c$$

[9] $$\int \sinh x \, dx = \cosh x + c$$

[10] $$\int \cosh x \, dx = \sinh x + c$$

[11] $$\int \tanh x \, dx = \ln(\cosh x) + c$$

[12] $$\int x(ax+b)^n \, dx = \frac{1}{a^2}(ax+b)^{n+1}\left[\frac{ax+b}{n+2} - \frac{b}{n+1}\right] + c, \quad n \neq -1, -2$$

[13] $$\int \frac{x^2}{ax+b} \, dx = \frac{1}{a^3}\left[\frac{1}{2}(ax+b)^2 - 2b(ax+b) + b^2 \ln|ax+b|\right] + c$$

[14] $$\int \frac{x^2}{(ax+b)^2} \, dx = \frac{1}{a^3}\left[ax + b - \frac{b^2}{ax+b} - 2b\ln|ax+b|\right] + c$$

[15] $$\int x\sqrt{ax+b} \, dx = \frac{2}{a^2}\left[\frac{(ax+b)^{5/2}}{5} - \frac{b(ax+b)^{3/2}}{3}\right] + c$$

[16] $$\int \frac{x}{\sqrt{ax+b}} \, dx = \frac{2ax-4b}{3a^2}\sqrt{ax+b} + c$$

[17] $$\int \frac{1}{x\sqrt{ax+b}} \, dx = \frac{1}{\sqrt{b}} \ln\left|\frac{\sqrt{ax+b}-\sqrt{b}}{\sqrt{ax+b}+\sqrt{b}}\right| + c, \quad b > 0$$

[18] $$\int \frac{dx}{\sqrt{a^2-x^2}} = \sin^{-1}\left(\frac{x}{a}\right) + c$$

[19] $$\int \frac{dx}{a^2+x^2} = \frac{1}{a}\tan^{-1}\left(\frac{x}{a}\right) + c$$

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

[21] $$\int \frac{1}{(a^2-x^2)^2}\,dx = \frac{x}{2a^2(a^2-x^2)} + \frac{1}{4a^3}\ln\left|\frac{x+a}{x-a}\right| + c$$

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

[23] $$\int \frac{1}{(a^2-x^2)^{3/2}}\,dx = \frac{1}{a^2}\frac{x}{\sqrt{a^2-x^2}} + c$$

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

[25] $$\int \frac{1}{\sqrt{x^2\pm a^2}}\,dx = \ln\left|x+\sqrt{x^2\pm a^2}\right| + c$$

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

[27] $$\int \frac{1}{(x^2\pm a^2)^{3/2}}\,dx = \pm\frac{1}{a^2}\frac{x}{\sqrt{x^2\pm a^2}} + c$$

[28] $$\int \sqrt{x^2\pm a^2}\,dx = \frac{1}{2}x\sqrt{x^2\pm a^2} \pm \frac{1}{2}a^2\ln\left|x+\sqrt{x^2\pm a^2}\right| + c$$

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

[30] $$\int \frac{1}{b+ke^{ax}}\,dx = \frac{1}{ab}\left[ax - \ln(b+ke^{ax})\right] + c, \quad ab \neq 0$$

[31] $$\int e^{ax}\sin bx\,dx = \frac{1}{a^2+b^2}e^{ax}(a\sin bx - b\cos bx) + c$$

[32] $$\int e^{ax}\cos bx\,dx = \frac{1}{a^2+b^2}e^{ax}(a\cos bx + b\sin bx) + c$$

[33] $$\int \sin^n x\,dx = -\frac{1}{n}\cos x\sin^{n-1}x + \frac{n-1}{n}\int \sin^{n-2}x\,dx$$

[34] $$\int \cos^n x\,dx = \frac{1}{n}\sin x\cos^{n-1}x + \frac{n-1}{n}\int \cos^{n-2}x\,dx$$

[35] $$\int \tan^n x\,dx = \frac{1}{n-1}\tan^{n-1}x - \int \tan^{n-2}x\,dx$$

[36] $$\int \sec^n x\,dx = \frac{\sec^{n-2}x\tan x}{n-1} + \frac{n-2}{n-1}\int \sec^{n-2}x\,dx$$

[37] $$\int \sin^m x\cos^n x\,dx = \frac{\sin^{m+1}x\cos^{n-1}x}{m+n} + \frac{n-1}{m+n}\int \sin^m x\cos^{n-2}x\,dx$$

[38] $$\int x^n e^x\,dx = x^n e^x - n\int x^{n-1}e^x\,dx$$

[39] $$\int x^n\sin x\,dx = -x^n\cos x + n\int x^{n-1}\cos x\,dx$$

[40] $$\int x^n\cos x\,dx = x^n\sin x - n\int x^{n-1}\sin x\,dx$$