
A Brief Table of Integrals

An arbitrary constant may be added to each integral

1. $\int x^n dx = \frac{1}{n+1}x^{n+1}$ (if $n \neq -1$)
2. $\int \frac{1}{x} dx = \ln|x|$
3. $\int u dv = uv - \int v du$
4. $\int e^x dx = e^x$
5. $\int \sin x dx = -\cos x$
6. $\int \cos x dx = \sin x$
7. $\int \tan x dx = -\ln|\cos x|$
8. $\int \sec x dx = \ln|\tan x + \sec x|$
9. $\int \sec^2 x dx = \tan x$
10. $\int \ln x = x \ln x - x$
11. $\int \frac{1}{a+bx} dx = \frac{1}{b} \ln|a+bx|$ ($b \neq 0$)
12. $\int \frac{1}{a^2+x^2} = \frac{1}{a} \tan^{-1} \frac{x}{a}$ ($a > 0$)
13. $\int \frac{1}{\sqrt{a^2-x^2}} dx = \sin^{-1} \frac{x}{a}$ ($a > 0$)
14. $\int \frac{1}{a^2-x^2} dx = \frac{1}{2a} \ln \left| \frac{a+x}{a-x} \right|$
15. $\int \frac{1}{x(a+bx)} dx = \frac{1}{a} \ln \left| \frac{x}{a+bx} \right|$
16. $\int x^n e^{ax} dx = \frac{x^n e^{ax}}{a} - \frac{n}{a} \int x^{n-1} e^{ax} dx$
17. $\int x^n \sin ax dx = -\frac{1}{a} x^n \cos ax - \frac{n}{a} \int x^{n-1} \cos ax dx$
18. $\int x^n \cos ax dx = \frac{1}{a} x^n \sin ax - \frac{n}{a} \int x^{n-1} \sin ax dx$
19. $\int \sin ax \sin bx dx = \frac{\sin(a-b)x}{2(a-b)} - \frac{\sin(a+b)x}{2(a+b)}$ ($a^2 \neq b^2$)
20. $\int \sin ax \cos bx dx = -\frac{\cos(a-b)x}{2(a-b)} - \frac{\cos(a+b)x}{2(a+b)}$ ($a^2 \neq b^2$)
21. $\int \cos ax \cos bx dx = \frac{\sin(a-b)x}{2(a-b)} + \frac{\sin(a+b)x}{2(a+b)}$ ($a^2 \neq b^2$)
22. $\int \sin^2 ax dx = \frac{1}{2a}(ax - \sin ax \cos ax)$
23. $\int \cos^2 ax dx = \frac{1}{2a}(ax + \sin ax \cos ax)$
24. $\int e^{ax} \sin bx dx = \frac{e^{ax}(a \sin bx - b \cos bx)}{a^2 + b^2}$
25. $\int e^{ax} \cos bx dx = \frac{e^{ax}(b \sin bx + a \cos bx)}{a^2 + b^2}$
26. $\int x^n \ln ax dx = x^{n+1} \left(\frac{\ln ax}{n+1} - \frac{1}{(n+1)^2} \right)$