

Basic Integration Formulas

1. $\int kf(u)du = k \int f(u)du$
2. $\int [f(u) \pm g(u)]du = \int f(u)du \pm \int g(u)du$
3. $\int du = u + C$
4. $\int u^n du = \frac{u^{n+1}}{n+1} + C, n \neq -1$
5. $\int \frac{du}{u} = \ln|u| + C$
6. $\int e^u du = e^u + C$
7. $\int a^u du = \frac{a^u}{\ln a} + C$
8. $\int \sin u du = -\cos u + C$
9. $\int \cos u du = \sin u + C$
10. $\int \tan u du = -\ln|\cos u| + C$
11. $\int \cot u du = \ln|\sin u| + C$
12. $\int \sec u du = \ln|\sec u + \tan u| + C$
13. $\int \csc u du = -\ln|\csc u + \cot u| + C$
14. $\int \sin^2 u du = \frac{1}{2}u - \frac{1}{4}\sin 2u + C$
15. $\int \cos^2 u du = \frac{1}{2}u + \frac{1}{4}\sin 2u + C$
16. $\int \tan^2 u du = \tan u - u + C$
17. $\int \cot^2 u du = -\cot u - u + C$
18. $\int \sec^2 u du = \tan u + C$
19. $\int \csc^2 u du = -\cot u + C$
20. $\int \sec u \tan u du = \sec u + C$
21. $\int \csc u \cot u du = -\csc u + C$
22. $\int \frac{du}{\sqrt{a^2-u^2}} = \arcsin \frac{u}{a} + C$
23. $\int \frac{du}{a^2+u^2} = \frac{1}{a} \arctan \frac{u}{a} + C$
24. $\int \frac{du}{u\sqrt{u^2-a^2}} = \frac{1}{a} \operatorname{arcsec} \frac{|u|}{a} + C$
25. $\int u \cdot dv = u \cdot v - \int v \cdot du$