TABLES OF INTEGRALS

POWERS

1. $\displaystyle\int u^n\,du = \frac{u^{n+1}}{n+1} + C,\ n \neq -1$

2. $\displaystyle\int \frac{du}{u} = \ln|u| + C$

EXPONENTIALS AND LOGARITHMS

3. $\displaystyle\int e^u\,du = e^u + C$

4. $\displaystyle\int p^u\,du = \frac{p^u}{\ln p} + C$

5. $\displaystyle\int ue^u\,du = ue^u - e^u + C$

6. $\displaystyle\int u^2 e^u\,du = u^2 e^u - 2ue^u + 2e^u + C$

7. $\displaystyle\int u^n e^u\,du = u^n e^u - n\int u^{n-1} e^u\,du$

8. $\displaystyle\int \ln u\,du = u\ln u - u + C$

9. $\displaystyle\int (\ln u)^2\,du = u(\ln u)^2 - 2u\ln u + 2u + C$

10. $\displaystyle\int u\ln u\,du = \tfrac{1}{2}u^2\ln u - \tfrac{1}{4}u^2 + C$

11. $\displaystyle\int u^n \ln u\,du = u^{n+1}\left[\frac{\ln u}{n+1} - \frac{1}{(n+1)^2}\right] + C$

12. $\displaystyle\int \frac{du}{u\ln u} = \ln|\ln u| + c$

SINES AND COSINES

13. $\displaystyle\int \sin u\,du = -\cos u + C$

14. $\displaystyle\int \cos u\,du = \sin u + C$

15. $\displaystyle\int \sin^2 u\,du = \tfrac{1}{2}u - \tfrac{1}{4}\sin 2u + C$

16. $\displaystyle\int \cos^2 u\,du = \tfrac{1}{2}u + \tfrac{1}{4}\sin 2u + C$

17. $\displaystyle\int \sin^3 u\,du = \tfrac{1}{3}\cos^3 u - \cos u + C$

18. $\displaystyle\int \cos^3 u\,du = \sin u - \tfrac{1}{3}\sin^3 u + C$

19. $\displaystyle\int \sin^n u\,du = -\frac{\sin^{n-1} u\cos u}{n} + \frac{n-1}{n}\int \sin^{n-2} u\,du$

20. $\displaystyle\int \cos^n u\,du = \frac{\cos^{n-1} u\sin u}{n} + \frac{n-1}{n}\int \cos^{n-2} u\,du$

21. $\displaystyle\int u\sin u\,du = -u\cos u + \sin u + C$

22. $\displaystyle\int u\cos u\,du = u\sin u + \cos u + C$

23. $\displaystyle\int u^n \sin u\,du = -u^n\cos u + n\int u^{n-1}\cos u\,du$

24. $\displaystyle\int u^n \cos u\,du = u^n\sin u - n\int u^{n-1}\sin u\,du$

25. $\displaystyle\int \sin mu\sin nu\,du = -\frac{\sin[(m+n)u]}{2(m+n)} + \frac{\sin[(m-n)u]}{2(m-n)} + C,\ m^2 \neq n^2$

26. $\displaystyle\int \cos mu\cos nu\,du = \frac{\sin[(m+n)u]}{2(m+n)} + \frac{\sin[(m-n)u]}{2(m-n)} + C,\ m^2 \neq n^2$

27. $\displaystyle\int \sin mu\cos nu\,du = -\frac{\cos[(m+n)u]}{2(m+n)} - \frac{\cos[(m-n)u]}{2(m-n)} + C,\ m^2 \neq n^2$

28. $\displaystyle\int e^{au}\sin bu\,du = \frac{e^{au}}{a^2+b^2}(a\sin bu - b\cos bu) + C$

29. $\displaystyle\int e^{au}\cos bu\,du = \frac{e^{au}}{a^2+b^2}(a\cos bu + b\sin bu) + C$