Table of Integrals

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

2. $\displaystyle\int \frac{1}{u}\,du = \ln|u| + C$

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

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

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

6. $\displaystyle\int \tan u\,du = \ln|\sec u| + C$

7. $\displaystyle\int \cot u\,du = \ln|\sin u| + C$

8. $\displaystyle\int \sec u\,du = \ln|\sec u + \tan u| + C$

9. $\displaystyle\int \csc u\,du = \ln|\csc u - \cot u| + C$

10. $\displaystyle\int \sec u \tan u\,du = \sec u + C$

11. $\displaystyle\int \csc u \cot u\,du = -\csc u + C$

12. $\displaystyle\int \sec^2 u\,du = \tan u + C$

13. $\displaystyle\int \csc^2 u\,du = -\cot u + C$

14. $\displaystyle\int \frac{1}{\sqrt{a^2-u^2}}\,du = \sin^{-1}\frac{u}{a} + C$

15. $\displaystyle\int \frac{1}{a^2+x^2}\,du = \frac{1}{a}\tan^{-1}\frac{u}{a} + C$

16. $\displaystyle\int \frac{1}{u\sqrt{u^2-a^2}}\,du = \frac{1}{a}\sec^{-1}\frac{|u|}{a} + C$

17. $\displaystyle\int \sinh u\,du = \cosh u + C$

18. $\displaystyle\int \cosh u\,du = \sinh u + C$

19. $\displaystyle\int \sin^{-1} u\,du = u\sin^{-1} u + \sqrt{1-u^2} + C$

20. $\displaystyle\int \tan^{-1} u\,du = u\tan^{-1} u - \frac{1}{2}\ln(1+u^2) + C$

21. $\displaystyle\int \sec^{-1} u\,du = u\sec^{-1} u - \ln|u + \sqrt{u^2-1}| + C$

Basic Trigonometric Identities

1. $\sin^2\theta + \cos^2\theta = 1$

2. $1 + \tan^2\theta = \sec^2\theta$

3. $\sin 2\theta = 2\sin\theta\cos\theta$

4. $\cos 2\theta = \cos^2\theta - \sin^2\theta = 2\cos^2\theta - 1 = 1 - 2\sin^2\theta$

5. $\cos^2\theta = \dfrac{1+\cos 2\theta}{2}$

6. $\sin^2\theta = \dfrac{1-\cos 2\theta}{2}$

7. $\sin(\alpha \pm \beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta$

8. $\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$