1. $\frac{d}{dx}(C) = 0$

2. $\frac{d}{dx}u^n = nu^{n-1}\frac{du}{dx}$

3. $\frac{d}{dx}\sin u = \cos u\frac{du}{dx}$

4. $\frac{d}{dx}\cos u = -\sin u\frac{du}{dx}$

5. $\frac{d}{dx}\tan u = \sec^2 u\frac{du}{dx}$

6. $\frac{d}{dx}\cot u = -\csc^2 u\frac{du}{dx}$

7. $\frac{d}{dx}\sec u = \sec u\tan u\frac{du}{dx}$

8. $\frac{d}{dx}\csc u = -\csc u\cot u\frac{du}{dx}$

9. $\frac{d}{dx}\log_a u = \frac{\log_a e}{u}\frac{du}{dx} \quad a > 0, a \neq 1$

10. $\frac{d}{dx}\log_e u = \frac{d}{dx}\ln u = \frac{1}{u}\frac{du}{dx}$

11. $\frac{d}{dx}a^u = a^u \ln a\frac{du}{dx}$

12. $\frac{d}{dx}e^u = e^u\frac{du}{dx}$

13. $\frac{d}{dx}\sin^{-1} u = \frac{1}{\sqrt{1-u^2}}\frac{du}{dx}$

14. $\frac{d}{dx}\cos^{-1} u = -\frac{1}{\sqrt{1-u^2}}\frac{du}{dx}$

15. $\frac{d}{dx}\tan^{-1} u = \frac{1}{1+u^2}\frac{du}{dx}$

16. $\frac{d}{dx}\cot^{-1} u = -\frac{1}{1+u^2}\frac{du}{dx}$

17. $\frac{d}{dx}\sec^{-1} u = \pm\frac{1}{u\sqrt{u^2-1}}\frac{du}{dx} \begin{cases} + \text{ if } u > 1 \\ - \text{ if } u < -1 \end{cases}$

18. $\frac{d}{dx}\csc^{-1} u = \mp\frac{1}{u\sqrt{u^2-1}}\frac{du}{dx} \begin{cases} - \text{ if } u > 1 \\ + \text{ if } u < -1 \end{cases}$

19. $\frac{d}{dx}\sinh u = \cosh u\frac{du}{dx}$

20. $\frac{d}{dx}\cosh u = \sinh u\frac{du}{dx}$

21. $\frac{d}{dx}\tanh u = \operatorname{sech}^2 u\frac{du}{dx}$

22. $\frac{d}{dx}\coth u = -\operatorname{csch}^2 u\frac{du}{dx}$

23. $\frac{d}{dx}\operatorname{sech} u = -\operatorname{sech} u\tanh u\frac{du}{dx}$

24. $\frac{d}{dx}\operatorname{csch} u = -\operatorname{csch} u\coth u\frac{du}{dx}$

25. $\frac{d}{dx}\sinh^{-1} u = \frac{1}{\sqrt{1+u^2}}\frac{du}{dx}$

26. $\frac{d}{dx}\cosh^{-1} u = \frac{1}{\sqrt{u^2-1}}\frac{du}{dx}$

27. $\frac{d}{dx}\tanh^{-1} u = \frac{1}{1-u^2}\frac{du}{dx}, \quad |u| < 1$

28. $\frac{d}{dx}\coth^{-1} u = \frac{1}{1-u^2}\frac{du}{dx}, \quad |u| > 1$

29. $\frac{d}{dx}\operatorname{sech}^{-1} u = \frac{1}{u\sqrt{1-u^2}}\frac{du}{dx}$

30. $\frac{d}{dx}\operatorname{csch}^{-1} u = -\frac{1}{u\sqrt{u^2+1}}\frac{du}{dx}$

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

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

3. $\int \sin u\,du = -\cos u$

4. $\int \cos u\,du = \sin u$

5. $\int \tan u\,du = \ln|\sec u| = -\ln|\cos u|$

6. $\int \cot u\,du = \ln|\sin u|$

7. $\int \sec u\,du = \ln|\sec u + \tan u| = \ln|\tan(u/2 + \pi/4)|$

8. $\int \csc u\,du = \ln|\csc u - \cot u| = \ln|\tan u/2|$

9. $\int \sec^2 u\,du = \tan u$

10. $\int \csc^2 u\,du = -\cot u$

11. $\int \sec u \tan u\,du = \sec u$

12. $\int \csc u \cot u\,du = -\csc u$

13. $\int a^u\,du = \frac{a^u}{\ln a} \quad a > 0, a \neq 1$

14. $\int e^u\,du = e^u$

15. $\int \sinh u\,du = \cosh u$

16. $\int \cosh u\,du = \sinh u$

17. $\int \tanh u\,du = \ln\cosh u$

18. $\int \coth u\,du = \ln|\sinh u|$

19. $\int \operatorname{sech} u\,du = \tan^{-1}(\sinh u)$

20. $\int \operatorname{csch} u\,du = -\coth^{-1}(\cosh u)$

21. $\int \operatorname{sech}^2 u\,du = \tanh u$

22. $\int \operatorname{csch}^2 u\,du = -\coth u$

23. $\int \operatorname{sech} u \tanh u\,du = -\operatorname{sech} u$

24. $\int \operatorname{csch} u \coth u\,du = -\operatorname{csch} u$

25. $\int \frac{du}{\sqrt{s^2 - u^2}} = \sin^{-1}\frac{u}{a} \quad \text{or} \quad -\cos^{-1}\frac{u}{a}$

26. $\int \frac{du}{\sqrt{u^2 \pm a^2}} = \ln|u + \sqrt{u^2 \pm a^2}|$

27. $\int \frac{du}{u^2 + a^2} = \frac{1}{a}\tan^{-1}\frac{u}{a} \quad \text{or} \quad -\frac{1}{a}\cot^{-1}\frac{u}{a}$

28. $\int \frac{du}{u^2 - a^2} = \frac{1}{2a}\ln\left|\frac{u-a}{u+a}\right|$

29. $\int \frac{du}{u\sqrt{a^2 \pm u^2}} = \frac{1}{a}\ln\left|\frac{u}{a + \sqrt{a^2 \pm u^2}}\right|$

30. $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a}\cos^{-1}\frac{a}{u} \quad \text{or} \quad \frac{1}{a}\sec^{-1}\frac{u}{a}$

31. $\int \sqrt{u^2 \pm a^2}\,du = \frac{u}{2}\sqrt{u^2 \pm a^2} \pm \frac{a^2}{2}\ln|u + \sqrt{u^2 \pm a^2}|$

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

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

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