

1. $D_x [f(x)^n] = n [f(x)]^{n-1} f'(x)$
2. $D_x [e^{f(x)}] = e^{f(x)} f'(x)$
3. $\int e^u du = e^u + C$
4. $D_x [\csc f(x)] = -\csc f(x) \cot f(x) f'(x)$
5. $D_x [\tan f(x)] = \sec^2 f(x) f'(x)$
6. $\int \sec^2 u du = \tan u + C$
7. $D_x [f(x)g(x)] = f(x)g'(x) + g(x)f'(x)$
8. $\ln e^{f(x)} = f(x)$
9. $\int a^u du = \frac{a^u}{\ln a} + C$
10. $D_x [\log_a f(x)] = \frac{f'(x)}{f(x) \ln a} = \frac{f'(x) \log_a e}{f(x)}$
11. $\int \sin u du = -\cos u + C$
12. $D_x [\tan^{-1} f(x)] = \frac{f'(x)}{1 + f(x)^2}$
13. $D_x [\csc^{-1} f(x)] = -\frac{f'(x)}{f(x) \sqrt{f(x)^2 - 1}}$
14. $\int \cot u du = \ln |\sin u| + C$
15. $D_x \left[\frac{f(x)}{g(x)} \right] = \frac{g(x)f'(x) - f(x)g'(x)}{g(x)^2}$
16. $\int \csc u du = \ln |\csc u - \cot u| + C$
17. $D_x [\sin^{-1} f(x)] = \frac{f'(x)}{\sqrt{1 - f(x)^2}}$
18. $\int \sec u \tan u du = \sec u + C$
19. $D_x [\cos f(x)] = -\sin f(x) f'(x)$
20. For $n \neq -1$, $\int u^n du = \frac{u^{n+1}}{n+1} + C$
21. $D_x [f(g(x))] = f'(g(x))g'(x)$
22. $\int \frac{1}{u} du = \ln |u| + C$
23. $e^{\ln f(x)} = f(x)$
24. $D_x [\sin f(x)] = \cos f(x) f'(x)$
25. $\int \cos u du = \sin u + C$
26. $\int \frac{1}{\sqrt{a^2 - u^2}} du = \sin^{-1} \frac{u}{a} + C$
27. $D_x [\cot f(x)] = -\csc^2 f(x) f'(x)$
28. $\ln e = 1$
29. $D_x [\ln f(x)] = \frac{f'(x)}{f(x)}$
30. $\int \csc^2 u du = -\cot u + C$
31. $D_x [\sec f(x)] = \sec f(x) \tan f(x) f'(x)$
32. $D_x [\cos^{-1} f(x)] = -\frac{f'(x)}{\sqrt{1 - f(x)^2}}$
33. $\int \tan u du = \ln |\sec u| + C$
34. $\int \sec u du = \ln |\sec u + \tan u| + C$
35. $\ln 1 = 0$
36. $D_x [\cot^{-1} f(x)] = -\frac{f'(x)}{1 + f(x)^2}$
37. $\int \frac{1}{u\sqrt{u^2 - a^2}} du = \frac{1}{a} \sec^{-1} \frac{u}{a} + C$
38. $D_x [\sec^{-1} f(x)] = \frac{f'(x)}{f(x) \sqrt{f(x)^2 - 1}}$
39. $\int \csc u \cot u du = -\csc u + C$
40. $D_x [a^{f(x)}] = a^{f(x)} f'(x) \ln a$
41. $\int \frac{1}{a^2 + u^2} du = \frac{1}{a} \tan^{-1} \frac{u}{a} + C$