Basic Integration Rules

1. $\int u^n \, du = \frac{u^{n+1}}{n+1} + C$, where $n \neq 1$.
2. $\int \frac{du}{u} = \log |u| + C$.
3. $\int e^{au} \, du = \frac{1}{a} e^{au} + C$, where $a \in \mathbb{R}$.
4. $\int a^{bu} \, du = \frac{1}{b \log a} a^{bu} + C$, where $a, b \in \mathbb{R}$.
5. $\int \cos u \, du = \sin u + C$.
6. $\int \sin u \, du = -\cos u + C$.
7. $\int \sec^2 u \, du = \tan u + C$.
8. $\int \csc^2 u \, du = -\cot u + C$.
9. $\int \sec u \tan u \, du = \sec u + C$.
10. $\int \csc u \cot u \, du = -\csc u + C$.
11. $\int \frac{du}{\sqrt{a^2 - u^2}} = \arcsin \frac{u}{a} + C$.
12. $\int \frac{du}{\sqrt{a^2 - u^2}} = -\arccos \frac{u}{a} + C$.
13. $\int \frac{du}{a^2 + u^2} = \frac{1}{a} \arctan \frac{u}{a} + C$.
14. $\int \sinh u \, du = \cosh u + C$.
15. $\int \cosh u \, du = \sinh u + C$.
16. $\int \operatorname{sech}^2 u \, du = \tanh u + C$.
17. $\int \operatorname{csch}^2 u \, du = -\coth u + C$.
18. $\int \operatorname{sech} u \tanh u \, du = -\operatorname{sech} u + C$.
19. $\int \operatorname{csch} u \coth u \, du = -\operatorname{csch} u + C$.