Basic Integration Formulas

1. $\int k\,dx = kx + C$
2. $\int x^n dx = \frac{x^{n+1}}{n+1} + C ; n \neq -1$
3. $\int \frac{dx}{x} = \ln|x| + C$
4. $\int e^x dx = e^x + C$.
5. $\int a^x dx = \frac{a^x}{\ln a} + C$.
6. $\int \sin x\,dx = -\cos x + C$
7. $\int \cos x\,dx = \sin x + C$.
8. $\int \sec^2 x\,dx = \tan x + C$.
9. $\int \csc^2 x\,dx = -\cot x + C$.
10. $\int \sec x \tan x\,dx = \sec x + C$.
11. $\int \csc x \cot x\,dx = -\csc x + C$.
12. $\int \tan x\,dx = \ln|\sec x| + C$.

(13) $\int \cot x\,dx = \ln|\sin x| + C$.

(14) $\int \sec x\,dx = \ln|\sec x + \tan x| + C$.

(15) $\int \csc x\,dx = -\ln|\csc x + \cot x| + C$.

(16) $\int \sinh x = \cosh x + C$.

(17) $\int \cosh x = \sinh x + C$.

(18) $\int \operatorname{sech}^2 x = \tanh x + C$.

(19) $\int \operatorname{csch}^2 x\,dx = -\coth x + C$.

(20) $\int \operatorname{sech} x \tanh x\,dx = -\operatorname{sech} x + C$.

(21) $\int \operatorname{csch} x \coth x\,dx = -\operatorname{csch} x + C$.

(22) $\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1}\left(\frac{x}{a}\right) + C$.

(23) $\int \frac{dx}{a^2 + x^2} = \frac{1}{a}\tan^{-1}\left(\frac{x}{a}\right) + C$.

(24) $\int \frac{dx}{x\sqrt{x^2 - a^2}} = \frac{1}{a}\sec^{-1}\left|\frac{x}{a}\right| + C$.