1 Table of Some Anti-derivatives

- $\int x^n\,dx = \begin{cases} \frac{x^{n+1}}{n+1}, & n \neq -1 \\ \ln|x|, & n = -1 \end{cases}$.
- $\int \frac{dx}{a^2+x^2} = \frac{1}{a}\operatorname{arctg}\frac{x}{a}$.
- $\int \frac{dx}{a^2-x^2} = \frac{1}{2a}\ln\left|\frac{a+x}{a-x}\right|$.
- $\int \ln x\,dx = x\ln x - x$.
- $\int \frac{dx}{x\ln x} = \ln|\ln x|$.
- $\int \log_b x\,dx = x\frac{\ln x - 1}{\ln b}$.
- $\int e^x\,dx = e^x$.
- $\int a^x\,dx = \frac{a^x}{\ln a}$.
- $\int \frac{x\,dx}{a^2 \pm x^2} = \pm\frac{1}{2}\ln|a^2 \pm x^2|$.
- $\int \frac{dx}{\sqrt{a^2-x^2}} = \arcsin\frac{x}{a}$ $(a > 0)$.
- $\int \frac{-dx}{\sqrt{a^2-x^2}} = \arccos\frac{x}{a}$ $(a > 0)$.
- $\int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln|x + \sqrt{x^2 \pm a^2}|$ $(a > 0)$.
- $\int \frac{x\,dx}{\sqrt{a^2 \pm x^2}} = \pm\sqrt{a^2 \pm x^2}$ $(a > 0)$.
- $\int \sqrt{a^2 - x^2}\,dx = \frac{x}{2}\sqrt{a^2 - x^2} + \frac{a^2}{2}\arcsin\frac{x}{a}$ $(a > 0)$.
- $\int \sqrt{x^2 \pm a^2}\,dx = \frac{x}{2}\sqrt{x^2 \pm a^2} \pm \frac{a^2}{2}\ln|x + \sqrt{x^2 \pm a^2}|$ $(a > 0)$.
- $\int \sin x\,dx = -\cos x$.
- $\int \cos x\,dx = \sin x$.
- $\int \operatorname{tg} x\,dx = -\ln|\cos x|$.
- $\int \operatorname{ctg} x\,dx = \ln|\sin x|$.
- $\int \sin^2 x\,dx = \frac{1}{2}(x - \sin x\cos x)$.
- $\int \cos^2 x\,dx = \frac{1}{2}(x + \sin x\cos x)$.
- $\int \arcsin x\,dx = x\arcsin x + \sqrt{1-x^2}$.
- $\int \arccos x\,dx = x\arccos x - \sqrt{1-x^2}$.
- $\int \operatorname{arctg} x\,dx = x\operatorname{arctg} x - \frac{1}{2}\ln(1+x^2)$.
- $\int \operatorname{arcctg} x\,dx = x\operatorname{arcctg} x + \frac{1}{2}\ln(1+x^2)$.
- $\int \operatorname{sh} x\,dx = \operatorname{ch} x$.
- $\int \operatorname{ch} x\,dx = \operatorname{sh} x$.
- $\int \operatorname{th} x\,dx = \ln|\operatorname{ch} x|$.
- $\int \operatorname{cth} x\,dx = \ln|\operatorname{sh} x|$.
- $\int \operatorname{arsh} x\,dx = x\operatorname{arsh} x - \sqrt{x^2+1}$.
- $\int \operatorname{arch} x\,dx = x\operatorname{arch} x - \sqrt{x^2-1}$.
- $\int \operatorname{arth} x\,dx = x\operatorname{arth} x + \frac{1}{2}\ln|1-x^2|$.
- $\int \operatorname{arcth} x\,dx = x\operatorname{arcth} x + \frac{1}{2}\ln|x^2-1|$.
- $\int |x|\,dx = \frac{|x|x}{2}$.
- $\int \operatorname{sgn} x\,dx = |x|$.
- $\int \operatorname{sgn} x \cdot f(x)\,dx = \operatorname{sgn} x \int f(x)\,dx$.