Basic Integrals

(indefinite integrals, constant of integration $+C$ omitted)

Table 1: Common indefinite integrals

Integrand	Antiderivative
$x^n, \quad n \neq -1$	$\frac{x^{n+1}}{n+1} + C$
$\frac{1}{x}$	$\ln \lvert x \rvert + C$
e^{ax}	$\frac{1}{a} e^{ax} + C \quad (a \neq 0)$
a^x	$\frac{a^x}{\ln a} + C \quad (a > 0,\ a \neq 1)$
$\sin x$	$-\cos x + C$
$\cos x$	$\sin x + C$
$\tan x$	$-\ln \lvert \cos x \rvert + C$
$\cot x$	$\ln \lvert \sin x \rvert + C$
$\sec^2 x$	$\tan x + C$
$\csc^2 x$	$-\cot x + C$
$\sec x \tan x$	$\sec x + C$
$\csc x \cot x$	$-\csc x + C$
$\sin^2 x$	$\frac{x}{2} - \frac{\sin(2x)}{4} + C$
$\cos^2 x$	$\frac{x}{2} + \frac{\sin(2x)}{4} + C$
$\frac{1}{x^2 + a^2}$	$\frac{1}{a} \arctan \frac{x}{a} + C \quad (a > 0)$
$\frac{1}{\sqrt{a^2 - x^2}}$	$\arcsin \frac{x}{a} + C \quad (\lvert x \rvert < a)$
$\frac{1}{a^2 - x^2}$	$\frac{1}{2a} \ln \left\lvert \frac{a + x}{a - x} \right\rvert + C \quad (a \neq 0)$
$\frac{1}{\sqrt{x^2 + a^2}}$	$\ln \lvert x + \sqrt{x^2 + a^2} \rvert + C$