Table of Integrals

$\int k\,du = ku + C$	$\int [k_1 f(u) \pm k_2 g(u)]\,du = k_1 \int f(u)\,du \pm k_2 \int g(u)\,du + C$
$\int u^n dx = \frac{u^{n+1}}{n+1} + C, \quad n \neq -1$	$\int (au+b)^n dx = \frac{(au+b)^{n+1}}{(n+1)a} + C, \quad n \neq -1$
$\int e^u dx = e^u + C$	$\int b^u dx = \frac{b^u}{\ln b} + C, \quad b > 0$
$\int \frac{1}{u}\,du = \ln\lvert u\rvert + C$	$\int \frac{f'(u)}{f(u)}\,du = \ln\lvert f(u)\rvert + C$
$\int u\,dv = uv - \int v\,du$	$\int \ln\lvert u\rvert\,dx = u\ln\lvert u\rvert - u + C$
$\int \sin(u)\,du = -\cos(u) + C$	$\int \cos(u)\,du = \sin(u) + C$
$\int \tan(u)\,du = \ln\lvert\sec(u)\rvert + C$	$\int \cot(u)\,du = \ln\lvert\sin(u)\rvert + C$
$\int \sec(u)\,du = \ln\lvert\sec(u) + \cot(u)\rvert + C$	$\int \csc(u)\,du = \ln\lvert\csc(u) - \cot(u)\rvert + C$
$\int \sec^2(u)\,du = \tan(u) + C$	$\int \csc^2(u)\,du = -\cot(u) + C$
$\int \sec(u)\tan(u)\,du = \sec(u) + C$	$\int \csc(u)\cot(u)\,du = -\csc(u) + C$
$\int \sin^n u\,du = -\frac{1}{n}\sin^{n-1} u\cos(u) + \frac{n-1}{n}\int \sin^{n-2} u\,du + C$	$\int \cos^n u\,du = \frac{1}{n}\cos^{n-1} u\sin(u) + \frac{n-1}{n}\int \cos^{n-2} u\,du + C$
$\int \tan^n u\,du = \frac{1}{n-1}\tan^{n-1} u - \int \tan^{n-2} u\,du + C$	$\int \cot^n u\,du = -\frac{1}{n-1}\cot^{n-1} u - \int \cot^{n-2} u\,du + C$
$\int \sec^n u\,du = \frac{1}{n-1}tan\,u\sec^{n-2} u + \frac{n-2}{n-1}\int \sec^{n-2} u\,du + C$	$\int \csc^n u\,du = -\frac{1}{n-1}cot\,u\csc^{n-2} u + \frac{n-2}{n-1}\int \csc^{n-2} u\,du + C$
$\int e^{au}\sin bu\,du = \frac{e^{au}}{a^2+b^2}(a\sin bu - b\cos bu) + C$	$\int e^{au}\cos bu\,du = \frac{e^{au}}{a^2+b^2}(a\cos bu + b\sin bu) + C$
$\int \frac{1}{\sqrt{a^2-u^2}}\,du = \sin^{-1}\frac{u}{a} + C$	$\int \frac{1}{\sqrt{u^2 \pm a^2}}\,du = \ln\left\lvert u + \sqrt{u^2 \pm a^2}\right\rvert + C$
$\int \frac{1}{u^2+a^2}\,du = \frac{1}{a}\tan^{-1}\frac{u}{a} + C$	$\int \frac{1}{u\sqrt{u^2-a^2}}\,du = \frac{1}{a}\sec^{-1}\frac{u}{a} + C$
$\int \frac{\pm 1}{a^2-u^2}\,du = \frac{\pm 1}{2a}\ln\left\lvert\frac{u+a}{u-a}\right\rvert + C$	$\int \frac{1}{u\sqrt{a^2 \pm u^2}}\,du = -\frac{1}{a}\ln\left\lvert\frac{a+\sqrt{a^2 \pm u^2}}{u}\right\rvert + C$
$\int \sqrt{a^2-u^2}\,du = \frac{u}{2}\sqrt{a^2-u^2} + \frac{a^2}{2}\sin^{-1}\frac{u}{a} + C$	$\int \sqrt{u^2 \pm a^2}\,du = \frac{u}{2}\sqrt{u^2 \pm a^2} \pm \frac{a^2}{2}\ln\left\lvert u + \sqrt{u^2 \pm a^2}\right\rvert + C$
$\int \frac{\sqrt{a^2 \pm u^2}}{u}\,du = \sqrt{a^2 \pm u^2} - a\ln\left\lvert\frac{a+\sqrt{a^2 \pm u^2}}{u}\right\rvert + C$	$\int \frac{\sqrt{u^2-a^2}}{u}\,du = \sqrt{u^2-a^2} - a\sec^{-1}\frac{u}{a} + C$
$\int \frac{1}{u^2\sqrt{a^2 \pm u^2}}\,du = -\frac{\sqrt{a^2 \pm u^2}}{a^2 u} + C$	$\int \frac{1}{(a^2 \pm u^2)^{\frac{3}{2}}}\,du = \frac{u}{a^2\sqrt{a^2 \pm u^2}} + C$
$\int \frac{a+bu}{c+du}\,du = \frac{bu}{d} + \frac{ad-bc}{d^2}\ln\lvert c+du\rvert + C$	$\int \frac{1}{b+ce^{au}}\,du = \frac{u}{b} - \frac{1}{ab}\ln\lvert b+ce^{au}\rvert + C$
$\int \frac{1}{(a+bu)(c+du)}\,du = \frac{1}{ad-bc}\ln\left\lvert\frac{c+du}{a+bu}\right\rvert + C$	$\int \frac{e^u}{(a+be^u)(c+de^u)}\,du = \frac{1}{ad-bc}\ln\left\lvert\frac{c+de^u}{a+be^u}\right\rvert + C$
$\int \frac{1}{(a^3 \pm u^3)}\,du = \pm\frac{1}{6a^2}\ln\left(\frac{(a \pm u)^3}{a^3 \pm u^3}\right) + \frac{1}{a^2\sqrt{3}}\tan^{-1}\left(\frac{2u \mp a}{a\sqrt{3}}\right)$	$\int \frac{1}{(a^4+u^4)}\,du = \frac{1}{2\sqrt{2}a^3}\left[\frac{1}{2}\ln\left(\frac{u^2+a\sqrt{2}u+a^2}{u^2-a\sqrt{2}u+a^2}\right) + \tan^{-1}\left(\frac{a\sqrt{2}u}{a^2-u^2}\right)\right]$
$\int \frac{1}{(a+b\sin u)}\,du = \frac{1}{\sqrt{b^2-a^2}}\ln\left(\frac{a\tan\frac{u}{2}+b-\sqrt{b^2-a^2}}{a\tan\frac{u}{2}+b+\sqrt{b^2-a^2}}\right)$	$\int \frac{1}{(a+b\cos u)}\,du = \frac{1}{\sqrt{b^2-a^2}}\ln\left(\frac{\sqrt{b^2-a^2}\tan\frac{u}{2}+a+b}{\sqrt{b^2-a^2}\tan\frac{u}{2}-a-b}\right)$
$\int \frac{1}{(a+b\sin u)}\,du = \frac{2}{\sqrt{a^2-b^2}}\tan^{-1}\left(\frac{a\tan\frac{u}{2}+b}{\sqrt{a^2-b^2}}\right), a > b$	$\int \frac{1}{(a+b\cos u)}\,du = \frac{2}{\sqrt{a^2-b^2}}\tan^{-1}\left(\frac{\sqrt{a^2-b^2}\tan\frac{u}{2}}{a+b}\right), a > b$