Table of Integrals (Antiderivatives)

Throughout these tables, a, b and C are constants, and n is a positive integer.

$f(x)$	$F(x) = \int f(x)\ dx$
$af(x) + bg(x)$	$a\int f(x)\ dx + b\int g(x)\ dx\ +\ C$
$f(x) + g(x)$	$\int f(x)\ dx + \int g(x)\ dx\ +\ C$
$f(x) - g(x)$	$\int f(x)\ dx - \int g(x)\ dx\ +\ C$
$af(x)$	$a\int f(x)\ dx\ +\ C$
1	$x + C$
x^a	$\frac{x^{a+1}}{a+1} + C$ if $a \neq -1$
$\frac{1}{x}$	$\ln\lvert x\rvert + C$
e^x	$e^x + C$
e^{ax}	$\frac{1}{a}e^{ax} + C$
a^x	$\frac{1}{\ln a}a^x + C$
$\sin x$	$-\cos x + C$
$\cos x$	$\sin x + C$
$\sec^2 x$	$\tan x + C$
$\csc^2 x$	$-\cot x + C$
$\sec x \tan x$	$\sec x + C$
$\csc x \cot x$	$-\csc x + C$
$\tan x$	$\ln\lvert\sec x\rvert + C$
$\cot x$	$\ln\lvert\sin x\rvert + C$
$\sec x$	$\ln\lvert\sec x + \tan x\rvert + C$
$\csc x$	$\ln\lvert\csc x - \cot x\rvert + C$
$\frac{1}{\sqrt{1-x^2}}$	$\arcsin x + C$
$\frac{1}{1+x^2}$	$\arctan x + C$

Integration by Parts Table

$f(x)$	$F(x) = \int f(x)\ dx$	Derivation method
$u(x)v'(x)$	$u(x)v(x) - \int u'(x)v(x)\ dx\ +\ C$	
xe^{ax}	$\frac{1}{a}xe^{ax} - \frac{1}{a^2}e^{ax} + C$	$u = x,\ dv = e^{ax}\,dx$
$x^n e^{ax}$	$\frac{1}{a}x^n e^{ax} - \frac{n}{a}\int x^{n-1}e^{ax}\,dx + C$	$u = x^n,\ dv = e^{ax}\,dx$
$\ln(ax)$	$x\ln(ax) - x + C$	$u = \ln(ax),\ dv = dx$
$x^n \ln(ax)$	$\frac{1}{n+1}x^{n+1}\ln(ax) - \frac{1}{(n+1)^2}x^{n+1} + C$	$u = \ln(ax),\ dv = x^n\,dx$
$x\sin(ax)$	$-\frac{1}{a}x\cos(ax) + \frac{1}{a^2}\sin(ax) + C$	$u = x,\ dv = \sin(ax)\,dx$
$x^n \sin(ax)$	$-\frac{1}{a}x^n\cos ax + \frac{n}{a}\int x^{n-1}\cos(ax)\,dx + C$	$u = x^n,\ dv = \sin(ax)\,dx$
$x\cos(ax)$	$\frac{1}{a}x\sin(ax) + \frac{1}{a^2}\cos(ax) + C$	$u = x,\ dv = \cos(ax)\,dx$
$x^n\cos(ax)$	$\frac{1}{a}x^n\sin ax - \frac{n}{a}\int x^{n-1}\sin(ax)\,dx + C$	$u = x^n,\ dv = \cos(ax)\,dx$
$\sin(ax)e^{bx}$	$\frac{e^{bx}}{a^2+b^2}\big(b\sin(ax) - a\cos(ax)\big) + C$	twice: $u = \sin(ax),\ dv = e^{bx}\,dx$
$\cos(ax)e^{bx}$	$\frac{e^{bx}}{a^2+b^2}\big(a\sin(ax) + b\cos(ax)\big) + C$	twice: $u = \cos(ax),\ dv = e^{bx}\,dx$
$\arcsin(ax)$	$x\arcsin(ax) + \frac{1}{a}\sqrt{1 - a^2x^2} + C$	$u = \arcsin(ax),\ dv = dx$
$\arctan(ax)$	$x\arctan(ax) - \frac{1}{2a}\ln(1 + a^2x^2) + C$	$u = \arctan(ax),\ dv = dx$