

## Table of Basic Integrals<sup>1</sup>

(1)	$\int x^n dx = \frac{1}{n+1}x^{n+1}, n \neq -1$	(11)	$\int \sec^2 x dx = \tan x$
(2)	$\int \frac{1}{x} dx = \ln x $	(12)	$\int \sec x \tan x dx = \sec x$
(3)	$\int u dv = uv - \int vdu$	(13)	$\int \frac{a}{a^2 + x^2} dx = \tan^{-1} \frac{x}{a}$
(4)	$\int e^x dx = e^x$	(14)	$\int \frac{a}{a^2 - x^2} dx = \frac{1}{2} \ln \left  \frac{x+a}{x-a} \right $
(5)	$\int a^x dx = \frac{1}{\ln a} a^x$	(15)	$\int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1} \frac{x}{a}$
(6)	$\int \ln x dx = x \ln x - x$	(16)	$\int \frac{a}{x\sqrt{x^2 - a^2}} dx = \sec^{-1} \frac{x}{a}$
(7)	$\int \sin x dx = -\cos x$	(17)	$\int \frac{1}{\sqrt{x^2 - a^2}} dx = \cosh^{-1} \frac{x}{a}$ $= \ln(x + \sqrt{x^2 - a^2})$
(8)	$\int \cos x dx = \sin x$	(18)	$\int \frac{1}{\sqrt{x^2 + a^2}} dx = \sinh^{-1} \frac{x}{a}$ $= \ln(x + \sqrt{x^2 + a^2})$
(9)	$\int \tan x dx = \ln \sec x $		
(10)	$\int \sec x dx = \ln \sec x + \tan x $		

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