

# Integral Cheat sheet

## Common Functions

Equation	Antiderivative
0	$C$
$k$	$kx + C$
$kf(x) dx$	$k \int f(x) dx$
$\int [f(x) \pm g(x)] dx$	$\int f(x) dx \pm \int g(x) dx$
$e^x$	$e^x + C$
$a^x$	$(\frac{1}{\ln(a)})a^x + C$
$\frac{1}{x}$	$\ln x  + C$
$\ln x$	$x * \ln x - x$

## Trigonometric Integrals

$$\int \sin = -\cos + C$$

$$\int \cos = \sin + C$$

$$\int \tan = -\ln|\cos| + C$$

$$\int \cot = \ln|\sin| + C$$

$$\int \sec = \ln|\sec + \tan| + C$$

$$\int \csc = -\ln|\csc + \cot| + C$$

## Abnormal Trigonometric Integrals

$$\int \sec^2 = \tan + C$$

$$\int \sec * \tan = \sec + C$$

$$\int \csc^2 = -\cot + C$$

$$\int \csc * \cot = -\csc + C$$

$$\int \tan = \ln|\sec|$$

## Inverse Trigonometric Integrals (a is positive)

$$\int \frac{1}{\sqrt{a^2 - x^2}} = \arcsin(\frac{x}{a}) + C$$

$$\int \frac{1}{a^2 + x^2} = \frac{1}{a} \arctan(\frac{x}{a}) + C$$

$$\int \frac{1}{x\sqrt{x^2 - a^2}} = \frac{1}{a} \operatorname{arcsec}(\frac{|x|}{a}) + C$$

## Integration Rules

Power Rule ( $n \neq -1$ )

$$\int x^n = \frac{x^{n+1}}{n+1} + C$$