

# Basic Integration Formulas

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## 1. Power functions:

$$(1) \int x^n = \frac{x^{n+1}}{n+1} + C, n \neq -1$$

$$(2) \int \frac{1}{x} dx = \ln |x| + C$$

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## 2. Trigonometric functions:

$$(3) \int \sin x dx = -\cos x + C$$

$$(4) \int \cos x dx = \sin x + C$$

$$(5) \int \sec^2 x dx = \tan x + C$$

$$(6) \int \csc^2 x dx = -\cot x + C$$

$$(7) \int \sec x \tan x dx = \sec x + C$$

$$(8) \int \csc x \cot x dx = -\csc x + C$$

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## 3. Exponential function:

$$(9) \int e^x dx = e^x + C$$

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## 4. Inverse of trigonometric functions:

$$(10) \int \frac{1}{\sqrt{1-x^2}} dx = \sin^{-1} x + C$$

$$(11) \int \frac{1}{1+x^2} dx = \tan^{-1} x + C$$

$$(12) \int \frac{1}{x\sqrt{x^2-1}} dx = \sec^{-1} |x| + C$$

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