

Antiderivatives and Indefinite Integrals

A function F is called an **antiderivative** of f on an interval I if $F'(x) = f(x)$ for all x in I .

$$\int f(x) dx = F(x) \text{ means } F'(x) = f(x)$$

Table of Indefinite Integrals

$$\int c f(x) dx = c \int f(x) dx$$

$$\int [f(x) \pm g(x)] dx = \int f(x) dx \pm \int g(x) dx$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C \text{ where } n \neq -1$$

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

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

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

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

$$\int \sec x \tan x dx = \sec x + C$$

$$\int \csc x \cot x dx = -\csc x + C$$