

The Anti-Derivative (Integral)

$$\int_a^b f(x) dx$$

Diagram labels:
 - upper limit (pointing to b)
 - integrand (pointing to $f(x)$)
 - lower limit (pointing to a)

Definite Integral

$$\int f(x) dx$$

Diagram label:
 - integrand (pointing to $f(x)$)

Indefinite Integral

Integrals of select functions.

Polynomial:

$$\int ax^n dx = \begin{cases} \frac{a}{n+1} x^{n+1} & , n \neq -1 \\ \ln|x| & , n = -1 \end{cases}$$

Trigonometry:

$$\int \sin(ax) dx = -\frac{1}{a} \cos(ax)$$

$$\int \cos(ax) dx = \frac{1}{a} \sin(ax)$$

$$\int \tan(ax) dx = \ln|\sec x|$$

Exponentials/Logarithms

$$\int a^x dx = \frac{1}{\ln(a)} a^x$$

$$\int \ln(x) dx = x \ln(x) - x$$