Definite Integral

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

The definite integral of $f(x)$ is a NUMBER and represents the area under the curve $f(x)$, above the x-axis, between $x = a$ and $x = b$.

Indefinite Integral

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

The indefinite integral of $f(x)$ is a FUNCTION and answers the question, "Which function when differentiated gives $f(x)$?"

Fundamental Theorem of Calculus

The FTC relates these two integrals in the following manner:

To compute a definite integral find the indefinite integral of the function, evaluate it at $x = b$, evaluate it at $x = a$, and subtract these two numbers.