1 | loose definition

$$\int \frac{d}{dx} f(x) dx = f(x)$$

2 | formal definition

The theorem comes in two parts, apparently

2.1 | part 1

3 | an example

Imagine a function that has the bound of an integral as an argument:

$$g(x) = \int_0^x t \; dt = \frac{x^2}{2}$$

$$\frac{d}{dx} g(x) = \frac{d}{dx} \int_0^x t \; dt = \frac{d}{dx} \frac{x^2}{2} = x$$