AN INTRODUCTION TO INTEGRATION

By **Tazim** and **Hasheem**

INTEGRATION IS THE REVERSE OPERATION OF DIFFERENTIATION.

If we differentiate the function:

$F(x) = x^2$ this gives $\frac{dy}{dx} = 2x$.

The integration is the reverse process which means:

From the derivative $2x$, integration allow us to work out the F(x).
It is written as:

$$\int 2x \, dx = x^2 + c$$

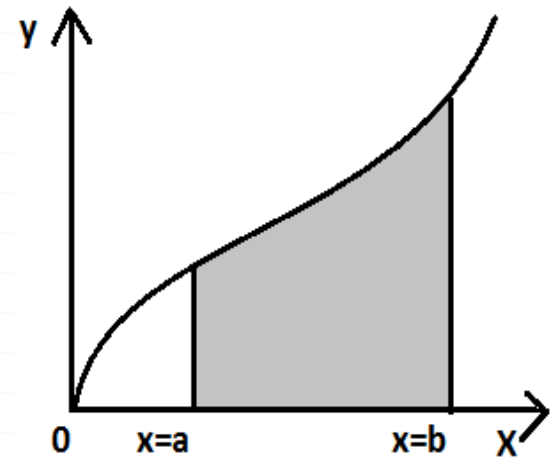It means the integral of $2x$ with respect to x is x^2.

DEFINITE INTEGRALS

This is a representation of generic function f(x), we want to calculate the area under the curve between x=a and x=b. It can be calculated by:

The function:

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

It is a definite function to solve it, we use the formula:

$$\int_a^b f(x)dx = [F(x)]_a^b = F(b) - F(a)$$

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