Definite Integration

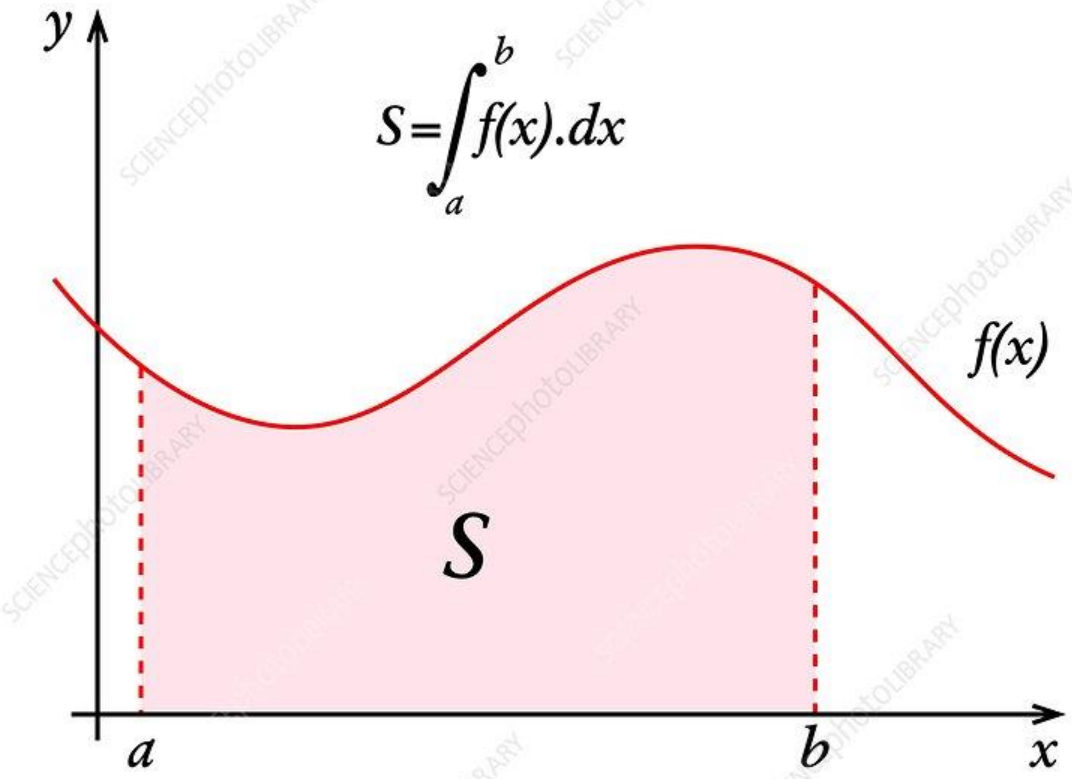
Definite Integration

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

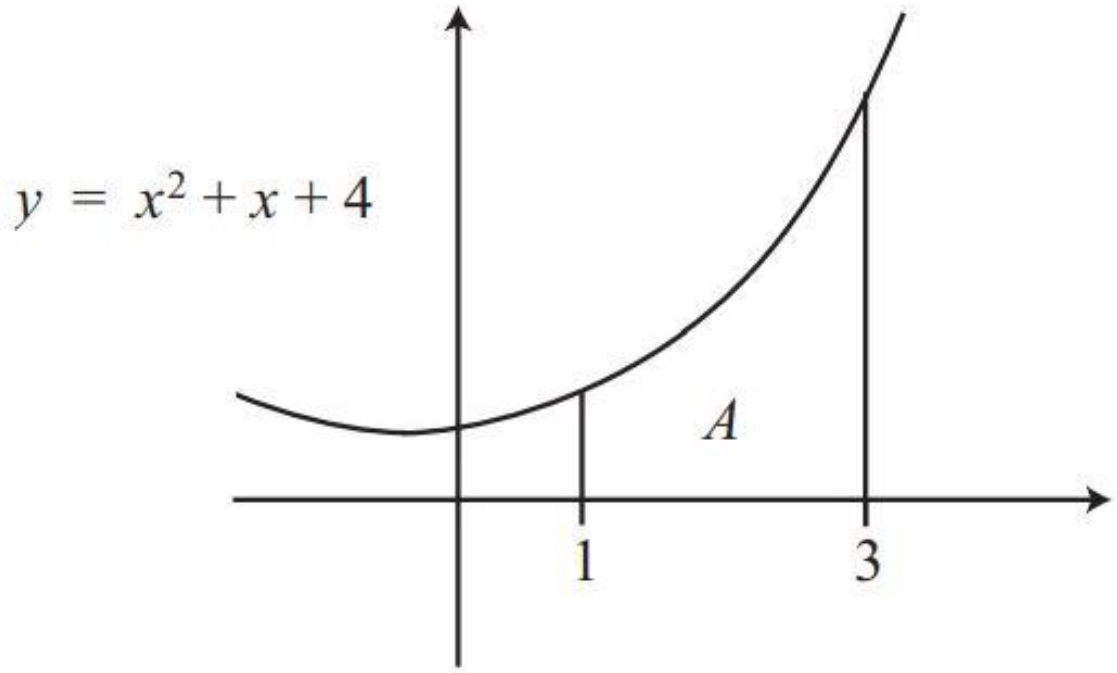
* Find $\int_1^2 3x^2 dx$

* Find $\int_1^3 2x + 1 dx$

Area Under a Curve



- Find the area bounded by the curve x^2+x+4, the x-axis and the ordinates $x = 1$ and $x = 3$.



Properties of Definite Integrals

- $\int_a^b f(x)dx = -\int_b^a f(x)dx$
- $\int_a^a f(x)dx = 0$
- $\int_a^b f(x)dx = \int_a^c f(x)dx + \int_c^b f(x)dx : \quad a < c < b$

Absolute Value Function

- $|x| = \begin{cases} x, if \ \ x \geq 0 \\ -x, if \ x < 0 \end{cases}$

- $|x - a| = \begin{cases} (x - a), \ \ if \ x \geq a \\ -(x - a), if \ x < a \end{cases}$

Find,

- $\int_0^2 |x-1| dx$
- $\int_2^3 |x+1| dx$
- $\int_0^2 2x + |x+2| dx$

The End