

5.2 - The Definite Integral

Riemann Sums → very similar to our rectangle formula

But the function:

- doesn't have to be continuous
- can be negative
- does not have to have evenly spaced Δx

$$\sum_{i=1}^n f(u_i) \Delta x_i$$

any value
between a & b

Δx is now

$\Delta x = x_i - x_{i-1}$ because the
distance can vary

$$\int_a^b f(x) dx = \lim_{\max \Delta x \rightarrow 0} \sum_{i=1}^n f(u_i) \Delta x$$

upper limit
lower limit

Definite integral

Short
cuts:

$$\int_a^a f(x) dx = 0$$

if $a > b$

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

$$\int_a^b h dx = h(b-a)$$

constant