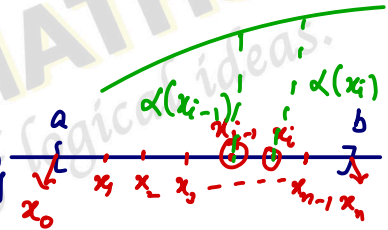
THE RIEMANN-STIELTJES INTEGRAL

Lower Riemann-Stieltjes Sum and Upper Riemann-Stieltjes Sum

Partition $[a,b]$

$P = \{a = x_0, x_1, x_2 \dots, x_n = b\}$



Let α is a real valued increasing function.

defined on $[a,b]$

f is a real valued function on $[a,b]$

$\Delta\alpha(x_i) = \alpha(x_i) - \alpha(x_{i-1}) > 0$

$[\alpha(x_i) > \alpha(x_{i-1})]$

$$m_i = \inf \{ f(x) \quad x \in [x_{i-1}, x_i] \}$$

$$M_i = \sup \{ f(x) \quad x \in [x_{i-1}, x_i] \}$$

$$L(P, f, \alpha) = \sum_{i=1}^{n} m_i \, \Delta\alpha_i$$

$$U(P, f, \alpha) = \sum_{i=1}^{n} M_i \, \Delta\alpha_i$$

OMG {MATHS}
The poetry of logical ideas.