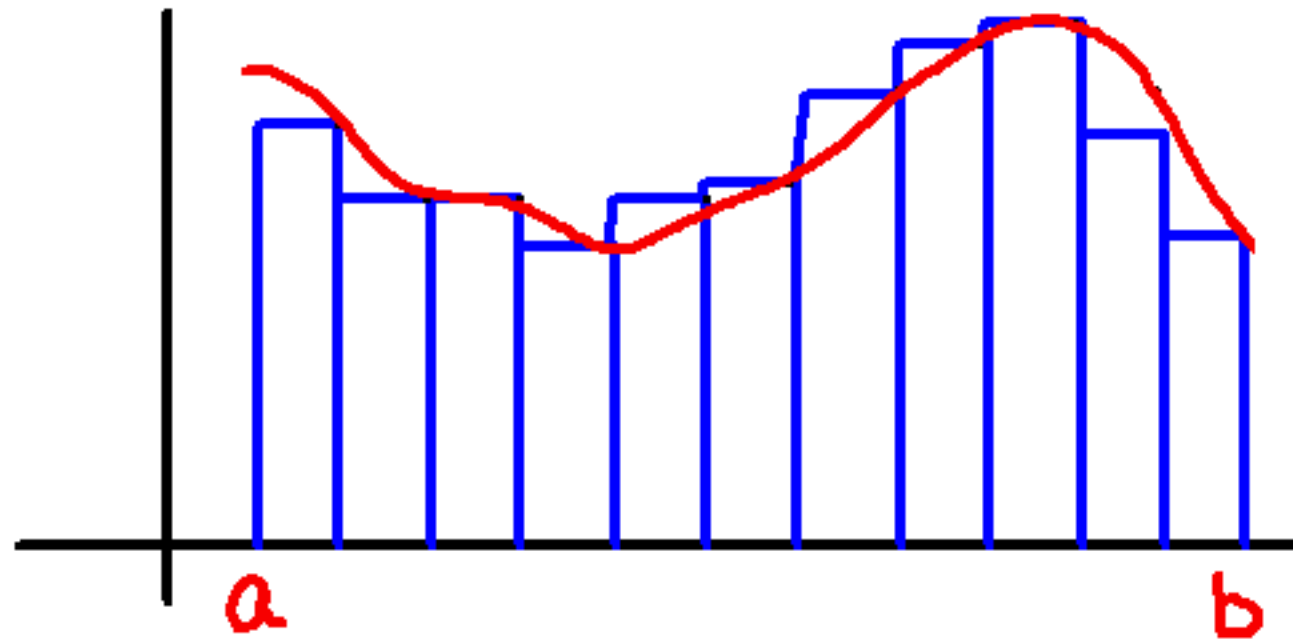


Area Under A Curve



n - # of rectangles

$$\Delta x = \frac{b-a}{n}$$

Area of a rectangle = $h * w$

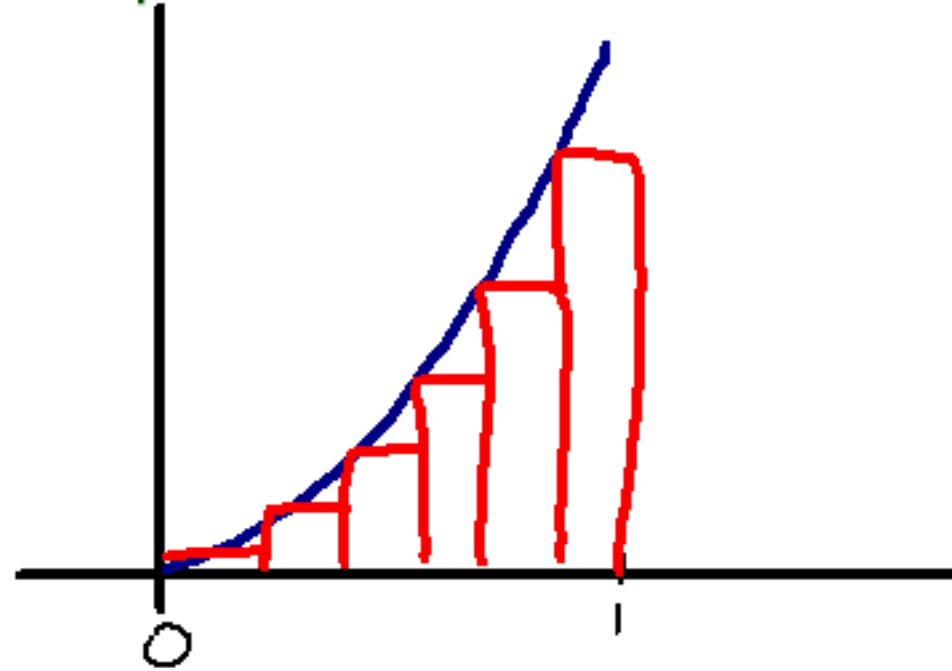
$$\text{Area} = \lim_{n \rightarrow \infty} [f(x_1)\Delta x + f(x_2)\Delta x + \cdots + f(x_{n-1})\Delta x + f(x_n)\Delta x]$$

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

Estimating Area

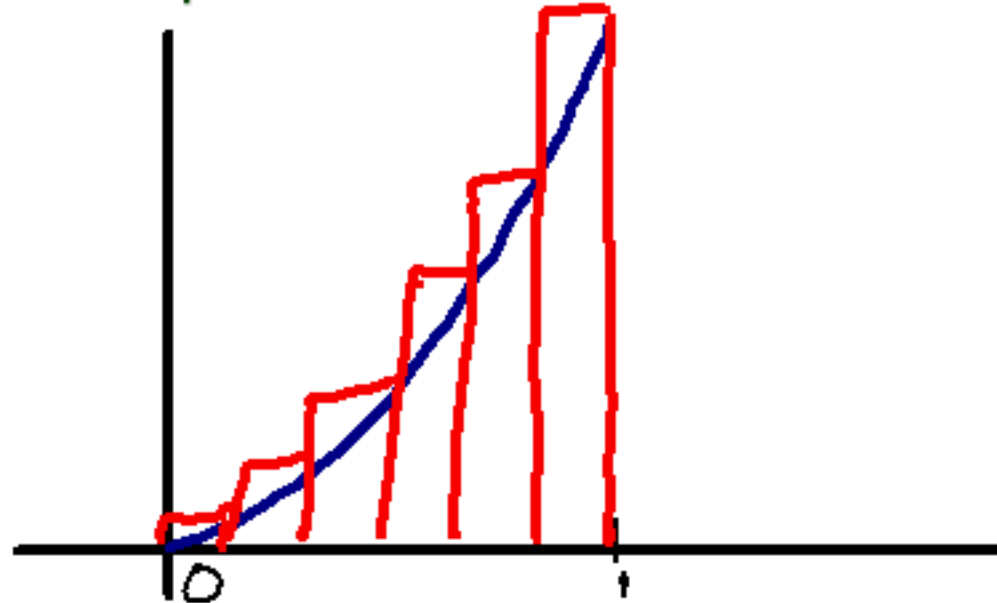
Let's say we wanted to approximate the area under the curve $y = x^2$ from $[0, 1]$ using 6 rectangles

Left Endpoints



L_6 :
underestimate

Right Endpoints



R_6 :
overestimate
(Reimann Sum)

$$A = \lim_{n \rightarrow \infty} L_n = \lim_{n \rightarrow \infty} R_n$$

