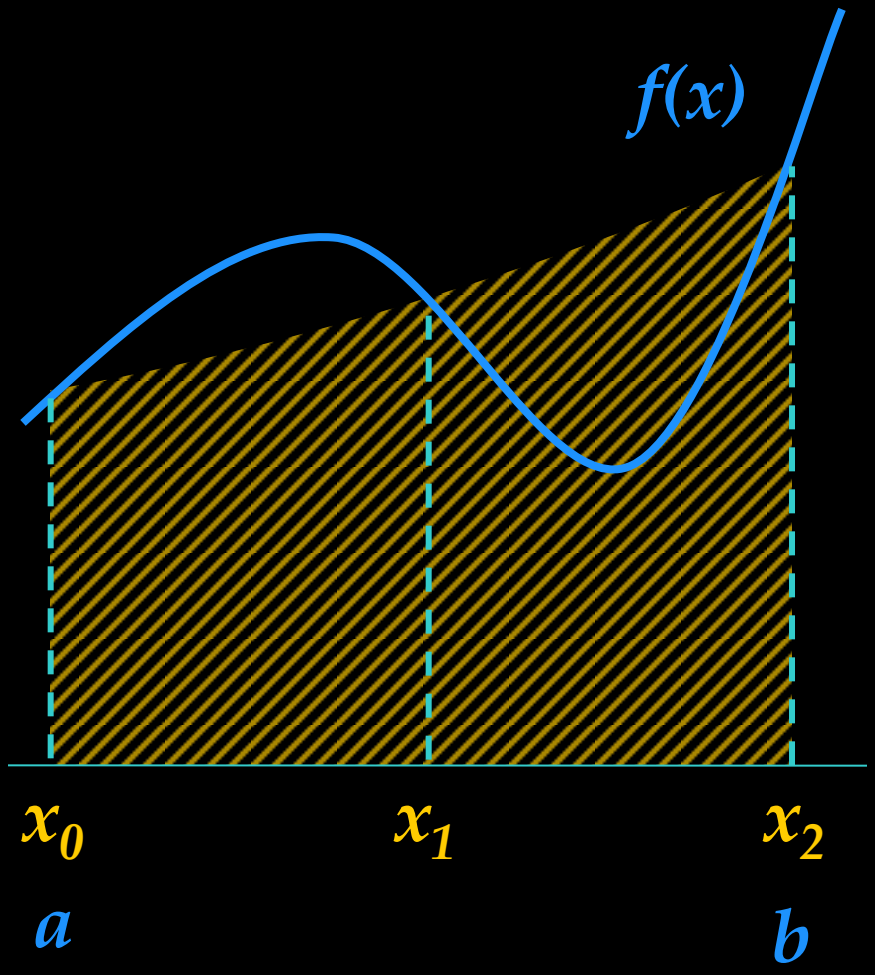
Método de Simpson

Integración numérica

Método de Simpson (un segmento)

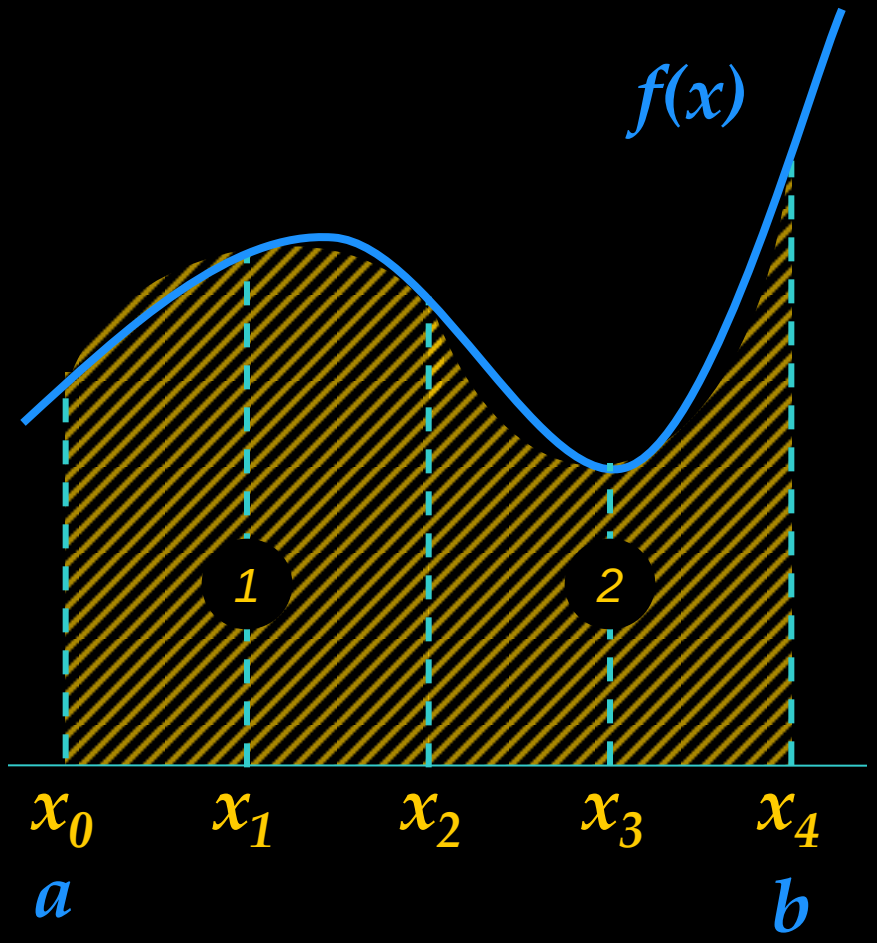


$$\int_a^b f(x) \approx \text{área}$$

$$\approx \text{base} \cdot \text{altura}$$

$$\approx (b-a) \cdot \left(\frac{f(x_0) + f(x_1) + f(x_2)}{2} \right)$$

Método de Simpson (varios segmentos)



$$\int_a^b f(x) \approx a1 + a2$$

$$\approx base \cdot h1 + base \cdot h2$$

$$\approx base(h1 + h2)$$

$$\approx base(h1+h2)$$

$$\approx \frac{(b-a)}{n}\cdot\left[\frac{f(x_0)+4f(x_1)+f(x_2)}{3}+\frac{f(x_2)+4f(x_3)+f(x_4)}{3}\right]$$

$$\approx \frac{(b-a)}{3n}\cdot\left[f(x_0)+4f(x_1)+2f(x_2)+4f(x_3)+f(x_4)\right]$$