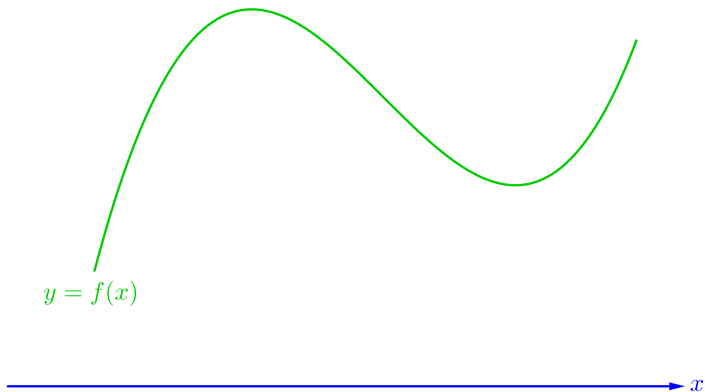


사다리꼴 근사법 (Trapezoidal Approximations)

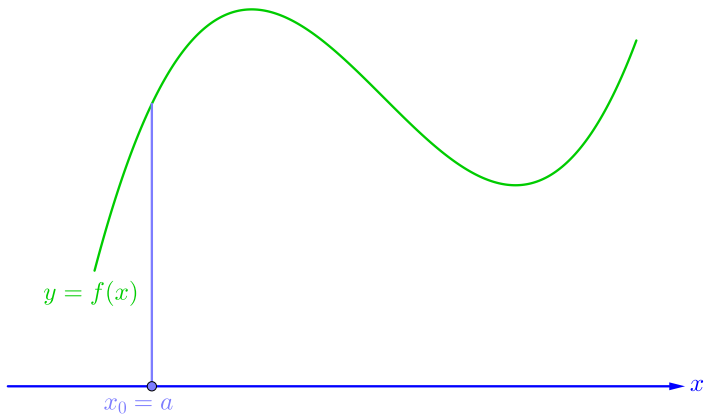
Trapezoidal Approximations



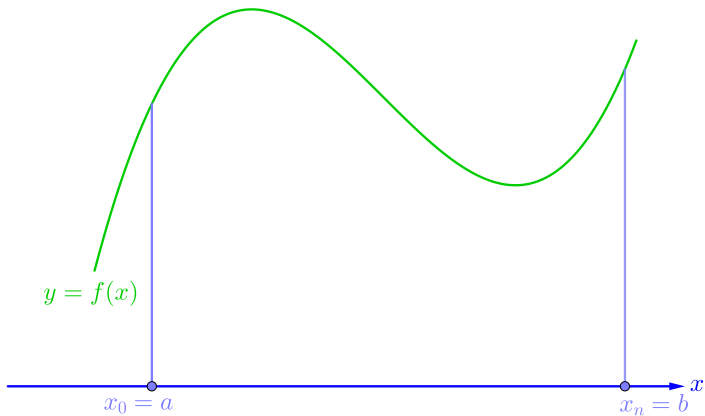
Trapezoidal Approximations



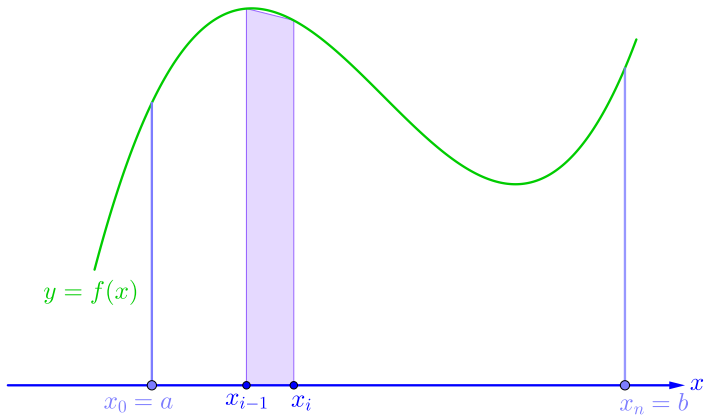
Trapezoidal Approximations



Trapezoidal Approximations

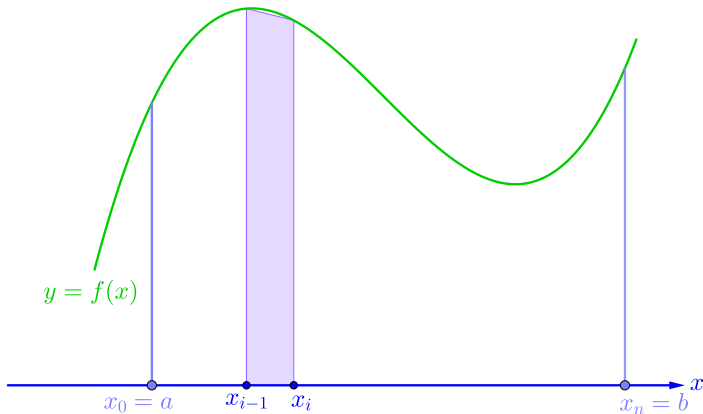


Trapezoidal Approximations

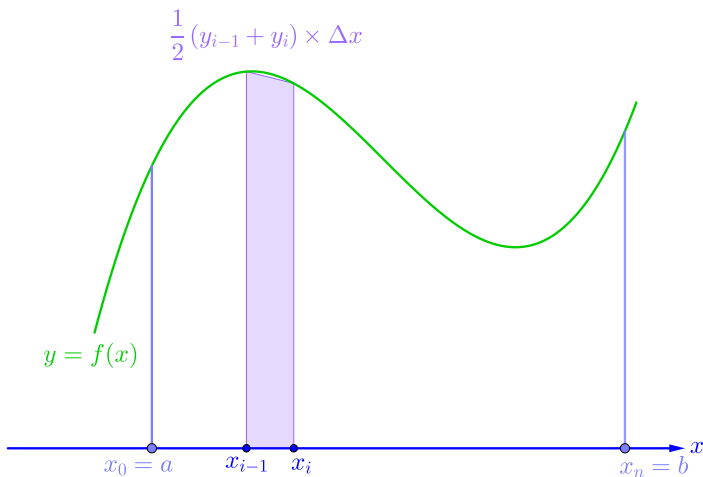


Trapezoidal Approximations

$$\frac{1}{2} \{f(x_{i-1}) + f(x_i)\} \times (x_i - x_{i-1})$$

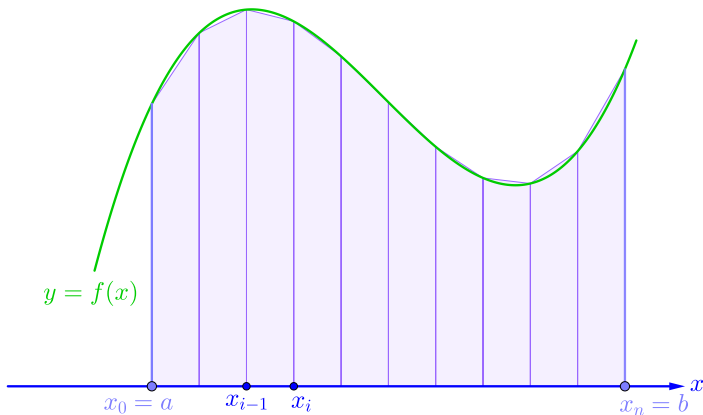


Trapezoidal Approximations



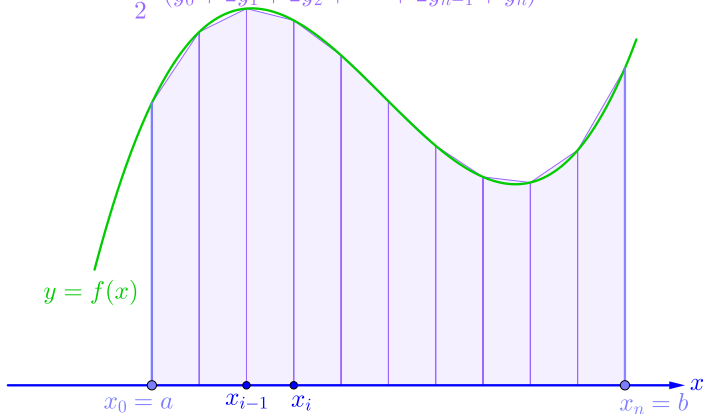
Trapezoidal Approximations

$$T_n = \sum_{i=1}^n \left\{ \frac{1}{2} (y_{i-1} + y_i) \times \Delta x \right\}$$



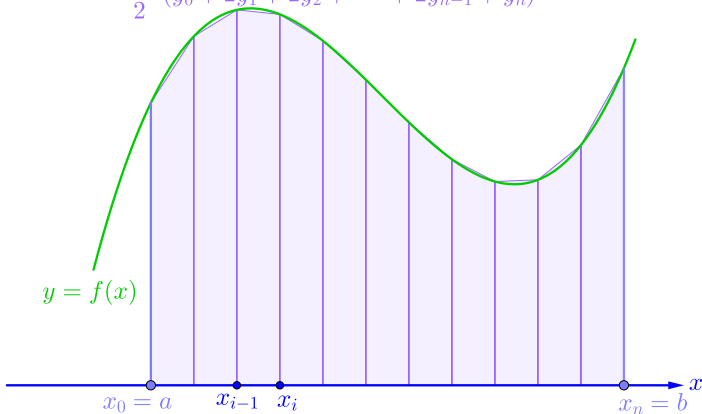
Trapezoidal Approximations

$$\begin{aligned}T_n &= \sum_{i=1}^n \left\{ \frac{1}{2} (y_{i-1} + y_i) \times \Delta x \right\} \\ &= \frac{\Delta x}{2} (y_0 + 2y_1 + 2y_2 + \cdots + 2y_{n-1} + y_n)\end{aligned}$$



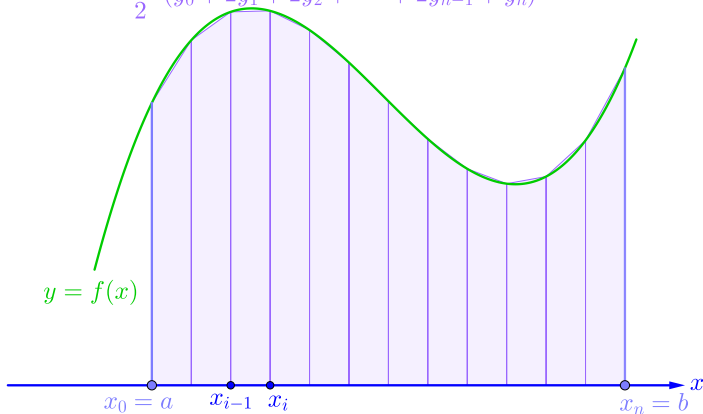
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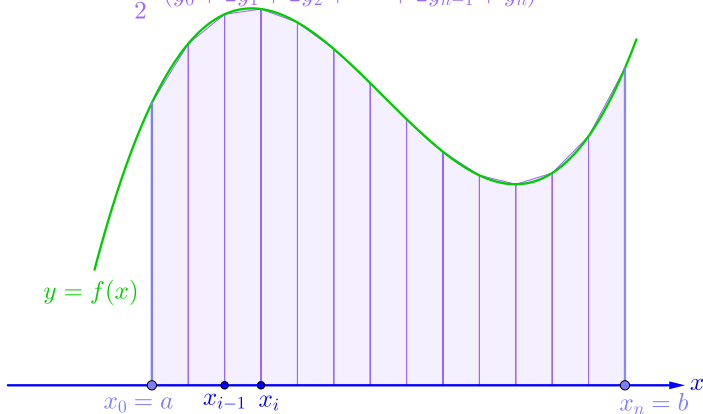
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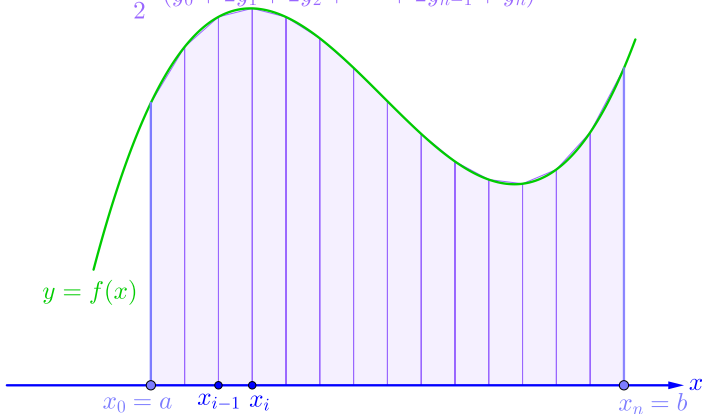
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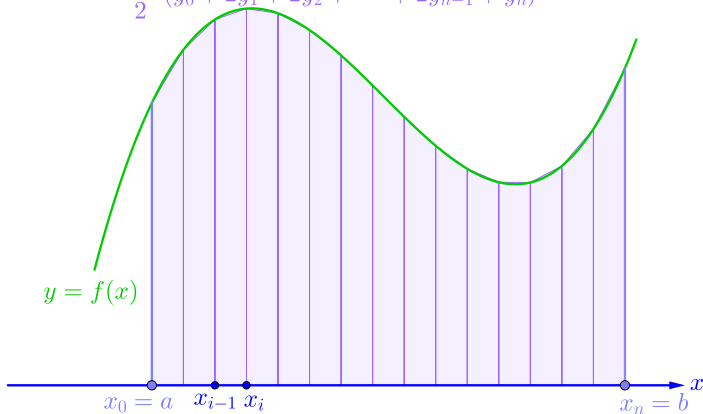
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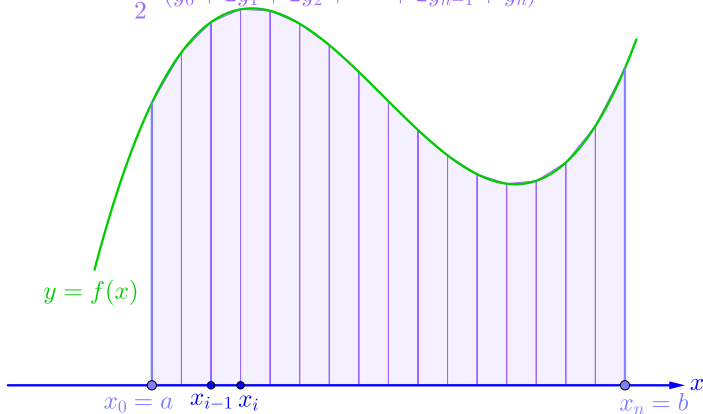
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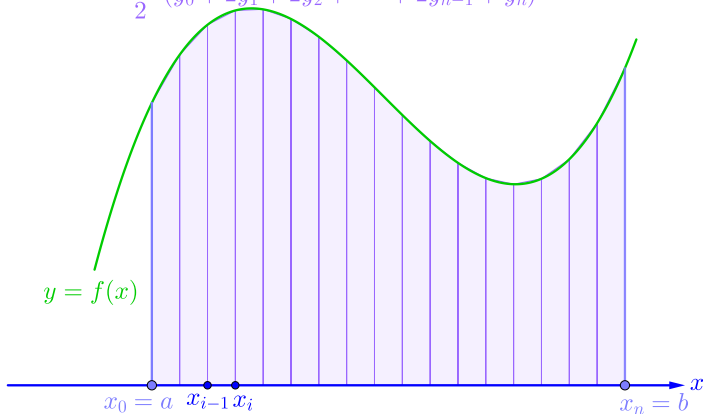
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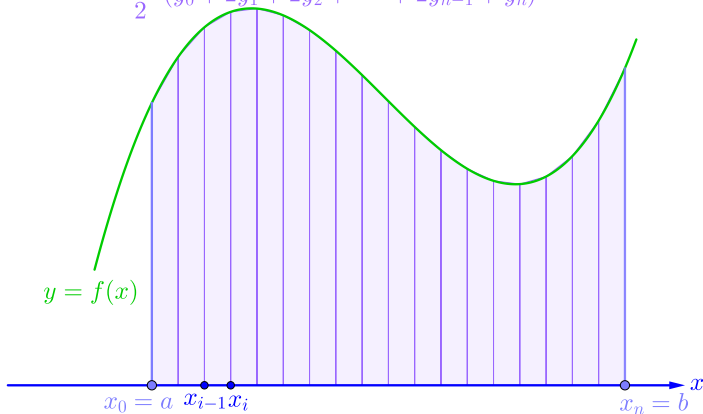
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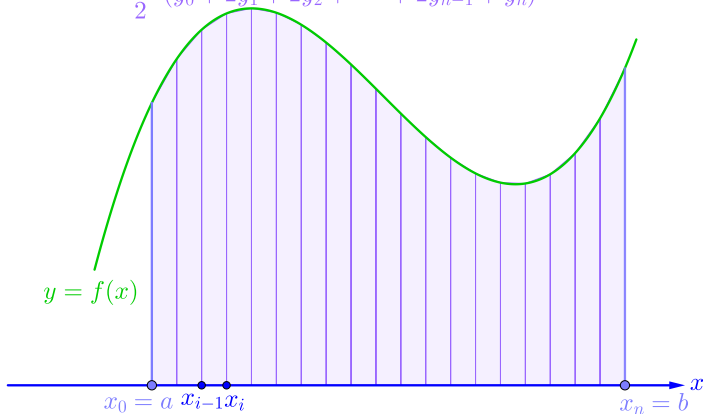
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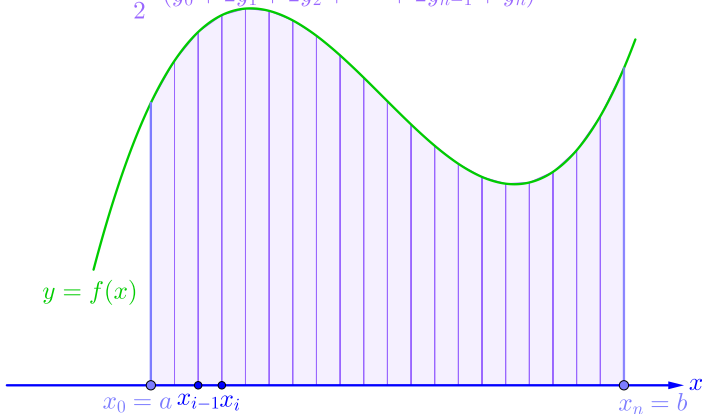
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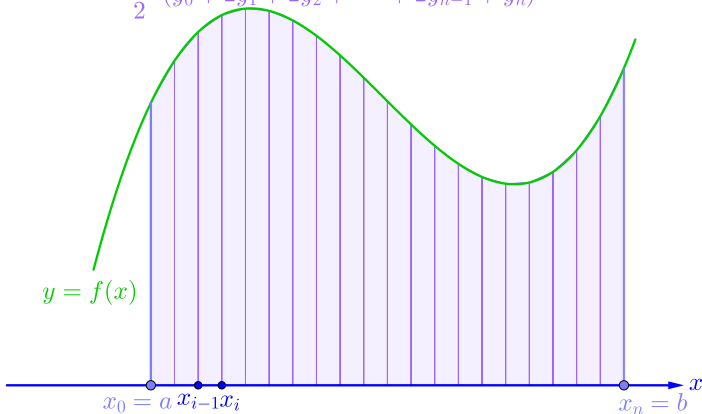
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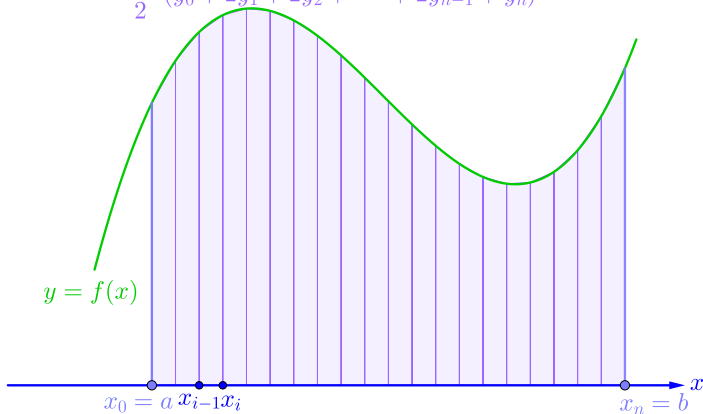
Trapezoidal Approximations

$$\begin{aligned} T_n &= \sum_{i=1}^n \left\{ \frac{1}{2} (y_{i-1} + y_i) \times \Delta x \right\} \rightarrow \int_a^b f(x) dx \\ &= \frac{\Delta x}{2} (y_0 + 2y_1 + 2y_2 + \cdots + 2y_{n-1} + y_n) \end{aligned}$$



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$$\begin{aligned}T_n &= \sum_{i=1}^n \left\{ \frac{1}{2} (y_{i-1} + y_i) \times \Delta x \right\} \rightarrow \int_a^b f(x) dx \text{ as } n \rightarrow \infty \\ &= \frac{\Delta x}{2} (y_0 + 2y_1 + 2y_2 + \cdots + 2y_{n-1} + y_n)\end{aligned}$$



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