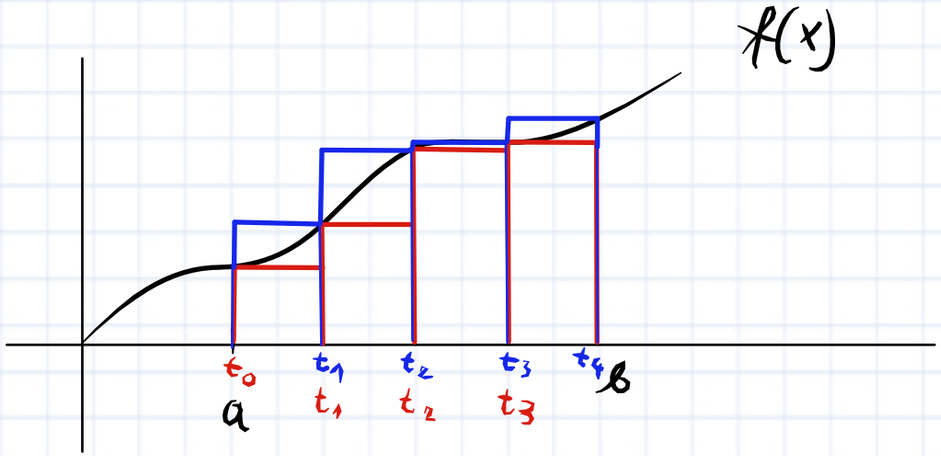
$$\lim_{n\to\infty} \frac{1}{2}\sum_{k=0}^{n-1} h\left(f(t_k) + f(t_{k+1})\right) =$$

$$\frac{1}{2}\left(\lim_{n\to\infty} \sum_{k=0}^{n-1} h\, f(t_k) + \lim_{n\to\infty} \sum_{k=0}^{n-1} h\, f(t_{k+1})\right) =$$

$$\frac{1}{2}\int_a^b f(x)\,dx + \frac{1}{2}\int_a^b f(x)\,dx = \int_a^b f(x)\,dx$$



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