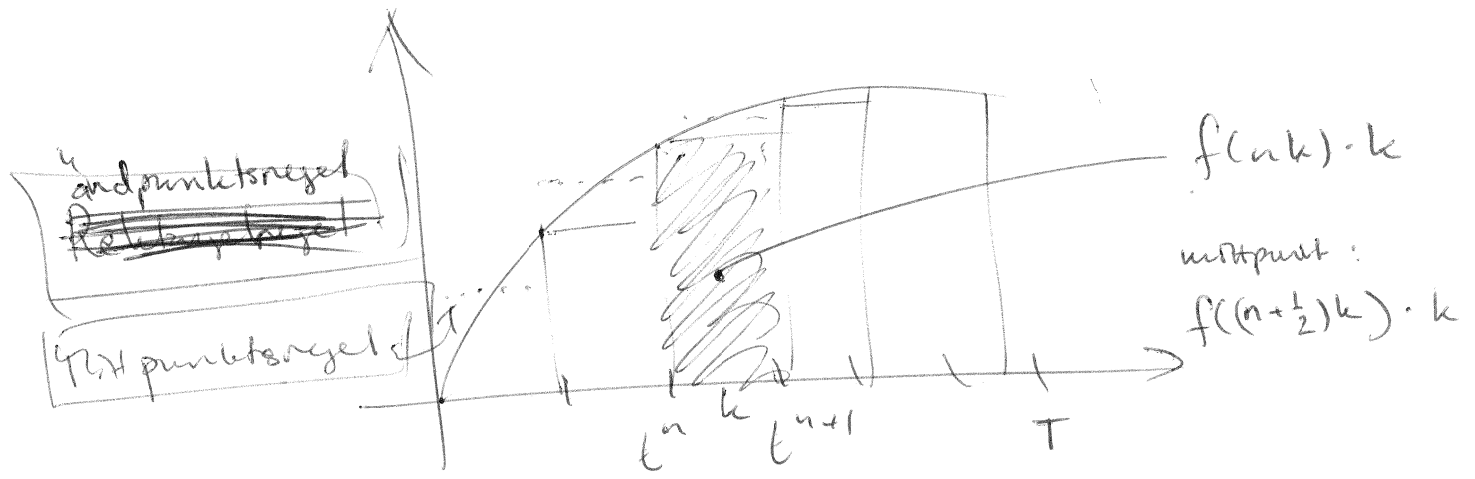
Fig 3: Riemannsummor



Konstatera fel "endpunktskonstanten":

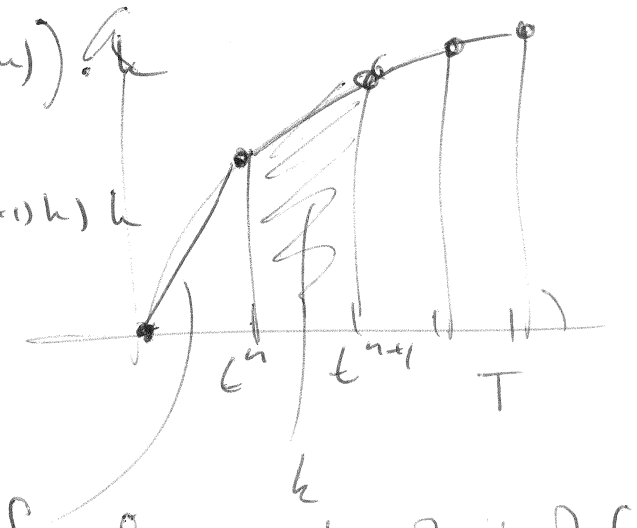
$$\left| \int_0^T f(t)\,dt - \sum_{n=0}^{N} f(nk)\cdot k \right| \leq \boxed{\frac{LT}{2}k}$$

Alternativ konstatera regel: trapetsregeln.

$$\int_0^T f(t)\,dt \approx \sum_{n=0}^{N} \frac{1}{2}\left(f(nk)+f((n+1)k)\right)\cdot k$$

$$= \frac{1}{2}f(0)k + \sum_{n=1}^{N} f(nk)\cdot k + \frac{1}{2}f((N+1)k)\,k$$

$$= \int_0^T f_k(t)\,dt$$



f_k linjär interpolant av f

Konstatera fel: $\left| \int_0^T f(t)\,dt - \int_0^T f_k(t)\,dt \right|$

$$\leq \int_0^T |f(t)-f_k(t)|\,dt \leq C\cdot k^2 \int_0^T dt = \boxed{CT\,k^2}$$

Jämför med rektangel/mittpunktsregel