

Theorem 1. *If K is a positive real number such that $|f''(x)| \leq K$ for all x in $[a, b]$, then an upper bound for the absolute value of the error, E_T , in approximating $\int_a^b f(x) dx$ using n trapezoids is*

$$|E_T| \leq \frac{K(b-a)^3}{12n^2}$$