

[quadratic variation] For a given partition $\pi_n = \{t_0 = 0, t_1, \dots, t_{m_n} = T\}$ of $[0, T]$, the quadratic variation of f is defined as

$$\langle f \rangle = V^{(2)}(f) := \lim_{|\pi_n| \rightarrow 0} V_n^{(2)}(f) = \lim_{|\pi_n| \rightarrow 0} \sum_{k=1}^{m_n} [f(t_k) - f(t_{k-1})]^2$$

Lemma 0.0.1. *An*