

Exercises

E16.2 [1CX] Let f be differentiable in the interval (a, b) , let $x_0 \in (a, b)$ and $x_0 < \alpha_n < \beta_n, \beta_n \rightarrow x_0$ for $n \rightarrow \infty$. Show that if the sequence $\frac{\beta_n - x_0}{\beta_n - \alpha_n}$ is bounded then

$$\frac{f(\beta_n) - f(\alpha_n)}{\beta_n - \alpha_n} \rightarrow_n f'(x_0)$$

Show by example that this conclusion is false if the given condition is not verified. [1CY]