

Exercises

E15.21 [1BR] Prerequisites: [1BP]. Note: See also Apostol [?].

Fix $a \in \mathbb{R}$, and I open interval with $a \in I$; assuming that $f : I \rightarrow \mathbb{R}$ is of class C^{n+1} , prove **Taylor's formula with integral remainder**

$$f(x) = \sum_{k=0}^n \frac{f^{(k)}(a)}{k!} (x-a)^k + \frac{1}{n!} \int_a^x (x-t)^n f^{(n+1)}(t) dt \quad .$$

Solution 1. [1BS]