

Exercises

E24.1 [1TW] Let $f(x) = \sum_{n=0}^{\infty} a_n x^n$ with radius of convergence $\rho > 0$, and let $f(0) = f'(0) = \dots = f^{(n)}(0) = 0$; show that the function $g(x) = f(x)/x^n$ is extendable to $x = 0$; show that (the extension of) g coincides with an appropriate power series $g(x) = \sum_{n=0}^{\infty} b_n x^n$. What can be said about the radius of convergence of g ?