## Exercises

E18.3 [1K9] Let $c_k$ be complex numbers, and $a_k = |c_k|$. Note that power series $\sum_{k=0}^{\infty} a_k z^k$ and $\sum_{k=0}^{\infty} c_k z^k$ have the same radius of convergence $R$.

Setting, for $t > 0$ real, $\tilde{f}(t) = \sum_{k=0}^{\infty} a_k t^k$, note that this formula defines a monotonic function $\tilde{f} : [0, \infty) \to [0, \infty]$; show that the radius of convergence $R$ coincides with the upper bound of $t \geq 0$ such that $\tilde{f}(t) < \infty$.

**Solution 1.** [1KB]

**Solution 2.** [1KC]