E9.4 [ON6] A sequence $(x_n) \subset X$ is a Cauchy sequence if and only if there exists a sequence $\varepsilon_n$ with $\varepsilon_n \geq 0$ and $\varepsilon_n \to_n 0$ such that, for every $n$ and every $m \geq n$, we have $d(x_n, x_m) \leq \varepsilon_n$.

**Solution 1.** [ON7]