Exercises

E17.3 [1J1] Find an example of functions $f_n : [0,1] \to [0,1]$ continuous, bounded, and such that $f_n(x) \searrow_n f(x)$ pointwise to $f : [0,1] \to [0,1]$ (i.e. for every x and n we have $0 \leq f_{n+1}(x) \leq f_n(x) \leq 1$ and $\lim_n f_n(x) = f(x)$) but f is not continuous and the convergence $f_n \to f$ is not uniform.

Solution 1. *[1J2]*