Exercises

E17.7 [1JQ] Let $f : \mathbb{R} \to \mathbb{R}$ and let $g_t : \mathbb{R} \to \mathbb{R}$ be the translations of f, defined (for $t \in \mathbb{R}$) by $g_t(x) = f(x - t)$. Show that g_t tends pointwise to f for $t \to 0$, if and only if f is continuous; and that g_t tends uniformly to f for $t \to 0$, if and only if f is uniformly continuous.

Solution 1. *[1JR]*