Exercises

E8.68 [2BB] *(Proposed on 2022-12)* Consider this statement.

«Let $f : X \to Y$ and $x_0 \in X$, then f is continuous at x_0 when, for every open set $B \subseteq Y$ with $f(x_0) \in B$, we have that $f^{-1}(B)$ is open.»

This statement is incorrect.

Build an example of a function $f : \mathbb{R} \to \mathbb{R}$ that is continuous at $x_0 = 0$ but such that, for every $J = (a, b)$ open non-empty bounded interval, $f^{-1}(J)$ is not open.

Solution 1. [2BC]