Exercises

E17.6 [1CD] Prerequisites:[1C8].Difficulty:*.

Find a bounded function $f : \mathbb{R} \to \mathbb{R}$ that maps intervals into intervals, but such that there does not exist $g : \mathbb{R} \to \mathbb{R}$ differentiable at every point and with $f = g'$.

(Note that f cannot be continuous, due to the Fundamental Theorem of Calculus.)

Solution 1. *[1CF]*