

Let f (from \mathbb{R} to \mathbb{R}) be \mathbb{Q} -linear : additive and $f(rx) = r f(x)$ for all real x and rational r . As we know that a linear function on \mathbb{R} is always continuous, can the linearity be relaxed to \mathbb{Q} -linearity? Does there exist discontinuous \mathbb{Q} -linear function?