Exercises

E6.55 [29T] Let $I \subset \mathbb{R}$, $x_0 \in \overline{\mathbb{R}}$ accumulation point of I, $f : I \to \mathbb{R}$ function. Let $r > 0, t \in \mathbb{R}, \rho < 0$; show that

$$\limsup_{x \to x_0}(f(x) + t) = t + \limsup_{x \to x_0} f(x) \quad , \quad \limsup_{x \to x_0}(rf(x)) = r \limsup_{x \to x_0}$$

$$\limsup_{x \to x_0}(\rho f(x)) = \rho \lim_{x \to x}$$