Exercises

E6.26 [OB9] Prerequisites: [OB7], [OB6]. *(Solved on 2022-11-24)* Let a_n, b_n be real sequences, for $n \in I$, show that

$$\sup_{n,m\in I}(a_n + b_m) = (\sup_{n\in I} a_n) + (\sup_{n\in I} b_n) \ ,$$

but

$$\sup_{n\in I}(a_n + b_n) \leq (\sup_{n\in I} a_n) + (\sup_{n\in I} b_n) \ ;$$

find a case where inequality is strict.

Solution 1. *[OBB]*