Math 206 — Algebraic Limit Theorems

Problem 1. Let (x_n) and (y_n) be convergent sequences and let $L = \lim x_n$ and $M = \lim y_n$. Prove that

a. $x_n + y_n \to L + M$

b. $\alpha x_n \to \alpha L$ for any $\alpha \in \mathbb{R}$

c. $x_n y_n \to LM$