1. Prove that if \( \{a_n\} \rightarrow a \) and \( \{b_n\} \rightarrow b \) that \( \{a_n - b_n\} \rightarrow a - b \).

Solution:
2. Prove that if \( \lim_{x \to x_0} f(x) = L_1 \) and \( \lim_{x \to x_0} g(x) = L_2 \) then \( \lim_{x \to x_0} (f \circ g)(x) = L_1 L_2 \).

You may assume all previous theorems from the notes.