1. State whether each statement is True or False. Then prove or give a counterexample.

(a) If a sequence is bounded then it is convergent.

(b) If \( \{a_n\} \) is convergent and \( \{a_n - b_n\} \) is convergent, then \( \{b_n\} \) is convergent.

2. Suppose the \( x > 0 \) and compute \( \lim_{n \to \infty} x^{\frac{1}{n}} \). Justify your answer.