1. Show that the sequence \( \{f_n\} \) in \( C[0, \pi] \) given by \( f_n(x) = \sin nx \) is not equicontinuous. Do this directly, not by appealing to Arzelà-Ascoli.

2. Let \( K \) be a compact metric space, and let \( \{f_n\} \) be an equicontinuous sequence of functions in \( C(K) \). Prove that if \( f_n \to f \) pointwise on \( K \), then \( f_n \to f \) uniformly.