1. If \( s = (x_n)_{1 \leq n < \infty} \) is a convergent sequence in a metric space \((X,d)\), then \( s \) is a Cauchy sequence.

2. If a subset \( Y \) of a metric space \((X,d)\) is totally bounded, then \( Y \) is bounded (entirely contained in some sphere).

3. Prove that if \( s = (x_n)_{1 \leq n < \infty} \) is a sequence in a metric space \((X,d)\) then
   (a) If \( s \) converges then \( s \) has exactly one limit point.
   
   (b) If \( X \) is compact and \( s \) has exactly one limit point, then \( s \) converges.