

1. Let $f : X \rightarrow Y$ a continuous bijection with X, Y both metric spaces. If X is compact, show f^{-1} is also continuous.
2. Let $f : \mathbb{R} \rightarrow \mathbb{R}$ such that $\sum a_n = a \implies \sum f(a_n) = f(a)$. Show $f(x) = cx$ for a fixed constant c .