

MAT 320. Short HW 11a due Tuesday Nov 19,
2018

Do problems 22.4, 22.6 from the textbook.

Problem 1. Suppose $f : S \rightarrow S'$ is a continuous *bijective* map from one metric space to another. Assume moreover that S is compact. Prove that f^{-1} is also a continuous map. Give a counterexample to this statement when S is not compact.

Problem 2. Deduce the intermediate value theorem for continuous maps $f : \mathbb{R} \rightarrow \mathbb{R}$ from the connectedness of the interval, and properties of connectedness under continuous maps.