Name: ______________________ Score (Out of 7 points):

1. (3 points) Let $(X, \mathcal{T}_X)$ be a topological space and let $S \subseteq X$ be a subset endowed with the subspace topology $\mathcal{T}_S$. Suppose that X is Hausdorff. Show that S is Hausdorff.

2. (4 points) Let X and Y be topological spaces, and let $f : X \to Y$ be a continuous **injective** map. Show that, if Y is Hausdorff, then X is Hausdorff.