Name: _____   Score (Out of 4 points):

1. (4 points) Let X be a set and let $d_X : X \times X \to \mathbb{R}$ be the *discrete* metric on X, that is, let

$$d_X(x, x') = \begin{cases} 0, & x = x' \\ 1, & x \neq x' \end{cases} \qquad \text{for all } x, x' \in X.$$

Let (Y, d_Y) be any metric space. Prove that any function $f : X \to Y$ is continuous.