Homework 7
Due: Friday, October 7

1. Consider the function $f(x) = x^2$ on the domain $D = [0, 10]$. Prove directly from the definition (i.e., without using something like Theorem 1.33) that $f(x)$ is uniformly continuous on D.

2. Suppose $f : D \to \mathbb{R}^m$ is uniformly continuous. Suppose that $\{\vec{x}_k\}_{k=1}^{\infty}$ is a Cauchy sequence in D. Show that $\{f(\vec{x}_k)\}_{k=1}^{\infty}$ is a Cauchy sequence in $\mathbb{R}^m$.

3. [F] 2.1.2

4. [F] 2.1.3

5. [F] 2.1.4