Assignment 1: Math 6342 Fall 2018
Professor William Ott

Exercise 1. Let (M, d) be a metric space and let $A \subset M$. Define $\varphi : M \to \mathbb{R}$ by
$$\varphi(x) = \inf_{a \in A} d(x, a).$$
That is, $\varphi(x)$ is the distance from the point x to the set A. Prove that φ is continuous.

Exercise 2. Exercises from Munkres.

   (a) $\S\mathbf{13} - 3$, 5, 6, 8

   (b) $\S\mathbf{16} - 3$, 4, 8

   (c) $\S\mathbf{17} - 3$, 6, 9, 11, 13, 14, 19(cd), 21