Name: _____ Score (Out of 4 points):

1. (4 points) Let (X, d) be a metric space. Recall that we defined the *distance* between nonempty subsets A, B in X by

$$D(A, B) = \inf_{\substack{a \in A \\ b \in B}} d(a, b).$$

Let $A \subseteq X$. Prove that

$$\overline{A} = \{x \in X \mid D(A, \{x\}) = 0\}.$$