

Name: _____

Score (Out of 8 points):

1. Let (X, d) be a metric space. On this quiz we will prove two equivalent characterizations of the closure \overline{A} of a subset $A \subseteq X$.

(a) (4 points) Let $A \subseteq X$. Let A' denote the set of all accumulation points of A . Prove that

$$\overline{A} = A \cup A'.$$

(b) (4 points) Let $A \subseteq X$. Prove that \overline{A} is equal to the intersection of all closed subsets containing A .