Name: _____ Score (Out of 5 points):

1. Let (X, d) be a metric space, and let $S \subseteq X$ be a subset.
   (a) (1 point) State the definition of an *accumulation point* of S.

   (b) (4 points) Suppose that the set S contains all of its accumulation points. Prove that S is a closed subset of X.

   Combined with the result of Homework #1 Question 5(c), this shows that a subset of a metric space is closed if and only if it contains all of its accumulation points!