

Name: \_\_\_\_\_ Score (Out of 4 points):

1. (4 points) Let  $(X, d)$  be a metric space and let  $A \subseteq X$  be a subset. Suppose that  $A$  has the property that, given any convergent sequence  $(a_n)_{n \in \mathbb{N}}$  of points in  $A$ , its limit  $a_\infty$  is contained in  $A$ . Prove that  $A$  is closed.

