Name: ————————————————

Homework 4 - Topology   **Due Wednesday, March 12, 2008**

1. Show that if X is a linear continuum and $A \subset X$, the following statements are equivalent:
(i) A is connected;
(ii) A is convex;
(iii) A is an interval, a ray, a point or the whole X.

2. (Pb. 2, page 152 textbook) Let $\{A_n\}$ be a sequence of connected subspaces of X, such that $A_n \cap A_{n+1} \neq \emptyset$ for all n. Show that $\bigcup A_n$ is connected.