Econ 703 Fall 2006
Homework 3

Due Tuesday, October 9.

1. Let K be the union of the set $\{0\}$ and the set $\{1/n, n \in Z_{++}\}$. Prove that K is compact directly from the definition (i.e., without using the Heine_Borel Theorem).

   (You can skip this problem if you solved it last week.)

2. Sundaram, #26, p. 68.

3. Sundaram, #52, p. 72.

4. Let (X, d) be a metric space. Prove that a set $A \subset X$ is closed if and only if, for every sequence $\{x_n\}$ such that $x_n \in A$ for all n, and $x_n \longrightarrow x$, then $x \in A$.