Econ 703 Fall 2007
Homework 2

Due Tuesday, October 2.

1. Sundaram, #13, p.68
2. Sundaram, #17, p.68
3. Sundaram, #23, p.68
4. A point x is an interior point of set A if there exists a neighbourhood N of x such that $N \subset A$. Let $\mathring{A}$ be the interior of the set A, i.e. the collection of all of its interior points. Prove the following :

   (1) $\mathring{A}$ is an open set;

   (2) A is open iff $A = \mathring{A}$

   (3) If $B \subset A$, and B is open, then $B \subset \mathring{A}$.
5. 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).