Maths 4255
Spring 2009
Take-Home Assignment # 1
Due Date: In-Class on 01/29/2009

Instructions: Your solutions must appear in an organized and legible format to be given full consideration.

1. **(chap 1, ex19, problems)**: From a group of 8 women and 6 men a committee consisting of 3 men and 3 women is to be formed. How many many different committees are possible if
   (a) 2 of the men refuse to serve together.
   (b) 2 of the women refuse to serve together.
   (c) 1 man and 1 woman refuse to serve together.

2. **(chap 1, ex14, theoretical exercises)**: From a set of n people a committee of size j is to be chosen, and from this committee a subcommittee of size i, $i \leq j$, is also to be chosen.

   Derive a combinatorial identity by computing in two ways, the number of possible choices of the committee and subcommittee- first by supposing that the committee is chosen first and then the subcommittee, and second by supposing that the subcommittee is chosen first and then the remaining members of the committee are chosen.