Class Problems, Lecture 7

Problem 1

There are (something like) 1600 faculty members at Harvard who can serve on subcommittees. Suppose there are 16000 subcommittees, with 80 faculty members on each subcommittee. Prove that there exists two subcommittees that have four members in common.

Hint 1: Use the probabilistic method!

Hint 2: Will be given about 5 minutes into class.