

Name:

ID:

1. Roger's father challenges him to a peculiar series of tennis games against him and the tennis teacher. The rules are: Roger can choose to play a three game series, either in the order teacher-father-teacher, or in the order father-teacher-father. To win the series, Roger must win two *consecutive* games. The teacher is a better player than the father.

Which ordering should Roger select?

2. M males and F females are seated at random in a single row of a theater with $M + F$ seats.

What is the expected number of adjacent pairs that consist of one male and one female?

3. Ballots are collected after an election between two candidates A and B , and placed into a ballot box. Ballots are then removed one at a time (randomly) from the box and counted. Suppose that A received a votes and B received b votes, with $a > b$.

What is the chance that, at some point after the counting begins, A and B are tied in the vote tally?