

Problem set 1, assigned on 9/22/19

1. The rules of a chess tournament say that each contestant must play every other contestant exactly once. How many games will be played if there are 18 participants?
2. There are three rooms in a dormitory: one single, one double, and one for four students. How many ways are there to house seven students in these rooms?
3. Each of two novice collectors has 20 stamps and 10 postcards. We call an exchange fair if they exchange a stamp for a stamp or a postcard for a postcard. How many ways are there to carry out one fair exchange between these two collectors?
4. How many “words” can be written using exactly five letters A and no more than three letters B (and no other letters)
5. How many ten-digit numbers have at least two equal digits?
6. How many ways are there to split 14 people into seven pairs?