

MATH413 HW 1

due **Feb 1** before class

- 1:** How many ways are there to pick a man and a woman who are not husband and wife from a group of n married couples?
- 2:** How many nonempty words can be formed from three A s and five B 's?
(not all letters must be used)
- 3:** How many ternary $(0,1,2)$ sequences of length 10 are there without any consecutive digits the same?
(Ternary means using digits 0,1,2. Similarly, binary would mean just digits 0,1.)
- 4:** What is the probability that if one letter is chosen at random from the word RECURRENCE and one letter is chosen from RELATION, the two letters are the same?
- 5:** How many different outcomes are possible when a pair of dice, one red and one white are rolled two consecutive times?
(Consider that first and second roll are distinguishable as well as the case where they are not - so it would correspond to having two red and two white dices)
- 6:** Construct a perfect cover of an 8-by-8 chessboard with dominoes (1×2) having no fault-line.
(Fault line is cutting the board but not any domino. See Page 7 in the book and Figure 1.5.)