MATH 416: Probability – Homework 2

(maximal points $= 50$)

Due: Tuesday, September 3
(either in class or turn in my office until 4pm)

Each point is worth 10 points and five of them will be graded. You can work
on these problems in small groups, but you need to write down your own
solution set and hand it separately. Show your work and appropriate steps
of each problem in order to receive full credits.

From the textbook <u>Problems</u> section:

Chapter 2. 9, 13, 14, 22, 25, 42, 43, 46.

Additional Problems.

1. How many ways can n identical balls be distributed into k bins such that
each bin contains at least two balls? Assume that $n \geq 2k$.

2. A card player is dealt a 13 card hand from a well-shuffled, standard deck
of cards. What is the probability that the hand is void in at least one suit
("void in a suit" means having no cards of that suit)?
Hint: Let E_i be the event that the hand is void in the suit i for $i = 1, 2, 34$
(*Clubs, Hearts, Diamonds, and Spades*).