Probability Concepts PS---3

1. A bowl contains 8 chips. Three are red and the remaining are blue. Two chips are to be drawn successively, at random and without replacements. Find the probabilities that (i) both are red (ii) both are blue (iii) both are different colors.

2. Bowl I contains 6 red chips and 4 blue chips. Five of these 10 chips are selected at random and without replacement and put in bowl II, which was originally empty. One chip is then drawn at random from bowl II. Relative to the hypothesis that this chip is blue, find the probability that 2 red chips and 3 blue chips are transferred from bowl I to bowl II.

3. A and B are two students and their chances of solving a problem correctly are 1/8 and 1/12 respectively. If the probability of their making a common mistake is 1/1001 and they obtain the same answer, find the chance that their answer is correct.

4. A restaurant serves two special dishes, A and B to its customers consisting of 60% men and 40% women, 80% of men order dish A and the rest B. 70% of women order dish B and the rest A. In what ratio of A to B should the restaurant prepare the two dishes?

5. A bag contains 5 white and 5 black balls. Person A draws 5 balls, retain any that are white and returns any black ones to the bag. Another person B then draws 5 balls, retains any that are white and returns any black ones to the bag. Now there are 6 balls in the bag. Find the probability that A drew exactly 2 white balls.

6. A and B play with 2 dice on the condition that A wins if he throws 6 before B throws 7 and B wins if he throws 7 before A throws 6. Show that A's chance is to B's chance is 30:31