**CS206** **Practice Probs.** **Feb. 27, 2012**

(These are practice problems, NOT TO HAND IN. I may add to them)

1. Two fair dice are rolled. What is the probability that the number showing on one of them will be twice the number showing on the other?

2. An urn has 5 white, 4 black, and 3 red chips. Four chips are drawn at random, without replacement. What is the sample space? What is the probability that you got W,R,W,B (this is event $A$? That you got at least two whites (this is event $B$)? What is $P_B(A)$?

3. Urn I has three red, two black, and five white chips. Urn II has two red, four black, and three white. One chip is drawn at random from each urn. What is the probability that both chips are the same color? Given that they are the same color, what is the probability of White?

4. How many ways can you choose a president, vice-president, and treasurer from club with 25 members? If the club is 12 men and 13 women, how many of these choices have no male officers? No male president?

5. A liquor store owner will cash checks up to 50 dollars, but is wary about customers wearing sunglasses. Fifty percent of checks written by customers wearing sunglasses bounce while only two percent of the checks written by persons not wearing sunglasses, bounce. Half the customers wear sunglasses. If a certain check bounces, what is the probability it had been written by a customer with sunglasses?

6. How many even numbers in $[100, 999]$ have distinct digits? How many palindromes (numbers that are the same when you write them backwards) are in this range? How about the range $[1000, 9999]$?

7. Find the probability that in a bridge deal, NO player gets 13 cards of the same suit.

8. (**) As above, find the probability that exactly two players each got dealt their 13 cards from a single suit.