Statistics Chapter 5 Review

1. A) What is the probability of obtaining 6 or fewer heads on 15 tosses of a fair coin?
   B) Find the mean and standard deviation for this experiment.

2. The average number of phone calls received per day at the poison control center is 4.
   A) Find the probability that it will receive 5 calls on a given day.
   B) Find the mean and standard deviation.

3. The probability that a student is accepted to a prestigious college is 0.30. A) If 5 students from the same school apply, what is the probability that at most 2 are accepted? B) Find the mean and standard deviation for this experiment.

4. Chef Bob likes to be adventurous with spices. He has 7 different spices in a cabinet – 4 are Indian Spices (like curry), 2 are Asian (like ginger), and 1 is chile pepper. He makes his famous chicken chili 6 different times and chooses one spice out of his cabinet. What is the probability that he will choose (randomly with his eyes closed) an Indian spice 3 times, an Asian spice 2 times and chile pepper once?

5. Suppose that in a certain town, 70% of the voters favor building a new ballpark. A) Find the probability that in a random sample of 5 voters exactly 2 of them favor a new ballpark. B) Find the mean and standard deviation.

6. Suppose the average number of lions seen on a one-day safari is 5. A) What is the probability that a tourist will see fewer than 4 lions on the next one-day safari? B) Find the mean and standard deviation.

7. A company purchases shipments of machine components and randomly tests a sample to see if they are defective. It is known that 3% of all components are defective. 28 components were tested. The whole batch is accepted if there are fewer than 3 defectives. A) What is the probability that the batch will be accepted? B) Find the mean and standard deviation.

8. The MLB World Series is a “best of 7” series, that is, the champion is the team that wins 4 out of 7 games. Assuming the teams are evenly matched, what is the probability that the World Series will last 5 games?

9. People were asked their opinion on whether there should be a balanced budget amendment for the federal government. 78% responded yes, 12% responded no, and 10% had no opinion. If 10 randomly selected people are asked the same question, what tis the probability that 5 will respond yes, 3 will respond no, and 2 will have no opinion?

10. The probability that I will win money playing the lottery varies depending on the amount. I could win $1, $5, $10, or $500 with probabilities 0.05, 0.025, 0.01, and 0.001 respectively. What is the probability that I would win at least $10?