Honors Statistics **Name**_____
Chapter 4 Review Period_____Date_____

1. Does this distribution meet the requirements to be a probability distribution? Explain your answer.

X	1	2	3	4
P(X)	0.25	0.35	0.45	-0.05

2. Does this distribution meet the requirements to be a probability distribution? Explain your answer.

X	0	1	2	3
P(X)	0.05	0.35	0.40	0.05

3. You draw a card from a deck. If you get a red card, you win nothing. If you get a spade, you win $5. For any club, you win $10.

a. Create a probability distribution for the amount you win at this game.

X =			
P(X)			

b. **Using the formula,** find the expected amount you'll win.
c. **Using the formula,** find the standard deviation.

4. An insurance company charges $100 for a policy which pays $10,000 if the policyholder dies and pays $5000 if the policyholder becomes disabled. The company predicts that there is a .001 chance of death and a .002 chance for a disability.

a. Create a probability distribution for the amount of **profit** for the company.

X =			
P(X)			

b. Find the expected amount of profit
c. Find the standard deviation.

5. Are the following situations binomial? Explain.

a. You ask 100 people if they drank coffee this morning.
b. We record eye color from a group of 500 people.
c. You ask 50 people if they are taking statistics
d. You ask 50 people what math class they are taking

6. Suppose 75% of all drivers always wear their seat belts You randomly select 30 people. Find the probability that

a. all of them always wear their seat belt.
b. at least 15 always wear their seat belt.
c. at least one always wears their seat belt.
d. more than 25 always wear their seat belt.
e. more than 15 **DO NOT** always wear their seat belt.

7. A certain tennis player makes a successful first serve 70% of the time. Assume that each serve is independent. If she serves 8 times, what's the probability she gets

a. all eight serves in?
b. exactly 4 serves in?
c. at least 4 serves in?
d. no more than 4 serves in?

8. Several students are unprepared for a multiple-choice quiz with 10 questions, and all of their answers are guesses. Each question has five possible answers.

a. Is this situation binomial? Explain your answer.
b. Find the mean and standard deviation for the number of correct answers.
c. Would it be unusual for a student to pass by guessing and getting at least 7 correct answers? Why or why not?
d. Find the probability that you guess at least 5 correct.
e. Find the probability that you guess more than 3 correct.
f. Find the probability that you guess exactly 8 correct.

9. Mars, Inc. claims that 10% of its M&M plain candies are blue. A sample of 100 such candies is randomly selected.

a. Is this situation binomial? Explain your answer.
b. Find the mean and standard deviation for the number of blue candies in a sample of 100 candies.
c. Would it be unusual to find 25 blue M&M's? Explain.
d. Would it be unusual to find 15 blue M&M's? Explain.

10. For drivers in the 20-24 age bracket, there is a 34% rate of car accidents in one year. An insurance investigation finds that in a group of 500 randomly selected drivers aged 20-24 living in New York, 42% had accidents in the last year.

a. Assuming the same 34% rate applies, find the mean and standard deviation for the number of people in groups of 500 that can be expected to have accidents.
b. How many drivers in the New York City group of 500 had accidents in the last year. Is this unusually high? Explain your answer.
c. According to these results, why would drivers in the 20-24 age bracket have a higher insurance premium in New York City?

11. In San Diego, 44% of the days in a year are clear. You randomly select 5 days. Make a probability histogram for this situation. Comment on the skewness of the distribution.