Name: **Elementary Statistics**

Chapter 5 Test REVIEW
(Sections 5.2-5.4)

1. Determine if the following random variables are discrete, continuous, or neither.

   a. The distance run by a member of the cross country team_____

   b. The number of cars in the parking lot at Saugerties High School_____

   c. The colors of the shirts worn by your classmates in your Statistics class today_____

   d. The heights of the members of the girls' basketball team_____

2. What are the 4 requirements for a binomial probability distribution?

3. When do we use the 5% Guideline for Cumbersome Calculations?

4. Express each of the following with the correct notation:

   a. the fixed number of trials _____

   b. the probability of success _____

   c. the probability of failure _____

   d. the specific number of successes in n trials _____

   e. the probability of getting exactly x successes _____

5. If you bet $1 in a certain lottery, you can win $400 (but your $1 bet is not returned). The game is played by selecting a 3 digit number where digits can be repeated. If you bet $1 on 1-2-3, what is your expected value of gain or loss?

6. A local video store determined the number of DVD's a person rents from a video store during a single visit. Use the following table to answer questions a-j.

Number of DVD's a person rents (x)	Percentage of Buyers	a. Find P(x)	b. Find $x \cdot P(x)$	c. Find $x^2 \cdot P(x)$
0	6%			
1	58%			
2	22%			
3	10%			
4	3%			
5	1%			

d. Is this a discrete probability distribution? Why or why not? (Be sure to state all 3 requirements & if they are met)

e. Find the mean.

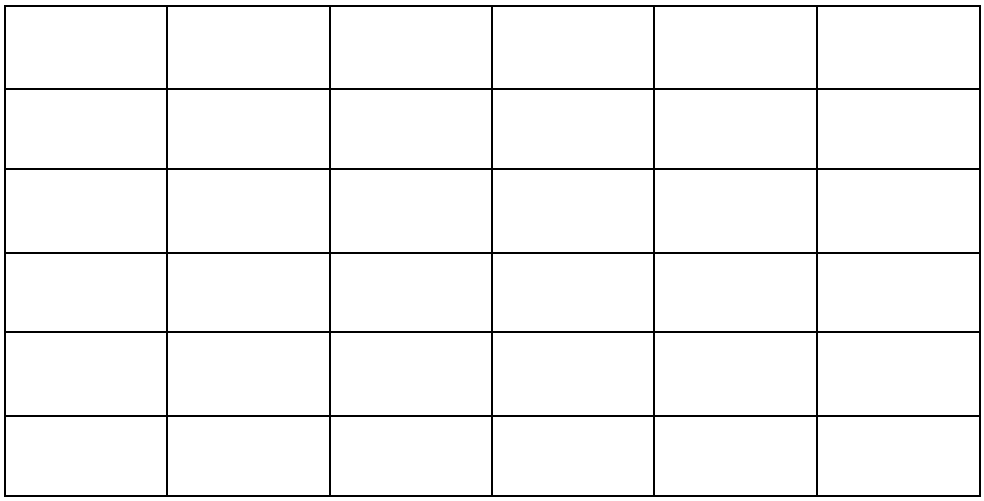
f. Find the variance.

g. Find the standard deviation. Round your answer to the thousandths place.

h. Use the range rule of thumb to determine if renting 4 DVD's would be usual or unusual.

i. Use the rare event rule of inferential statistics to determine if renting 4 DVD's would be considered an unusually high number.

j. Create a probability histogram:



7. Sally has just been given a 4-question multiple-choice quiz in her economics class. Each question has five answers, of which only one is correct. Since Sally has not attended class recently, she doesn't know any of the answers. Assume that Sally guesses on all 4 questions. (If necessary, round your final answers to 3 significant digits.)

a. Does this meet the requirements for a binomial distribution? Why or why not?

b. What is the probability that she will answer all 4 questions correctly?

c. What is the probability that she will answer at least 3 questions correctly?

d. What is the probability that she will answer no more than 1 question correctly?

8. Based on a Harris poll of 370 adults who regret getting tattoos, 20% of them say that they were too young when they got their tattoos.

a. For randomly selected groups of 370 adults who regret getting tattoos, find the mean number who say that they were too young when they got their tattoos.

b. For randomly selected groups of 370 adults who regret getting tattoos, find the standard deviation for the number who say that they were too young when they got their tattoos.

c. Use the range rule of thumb to determine if 90 adults would be an unusual number who say that they were too young when they got their tattoos.