Date _____ Period _____

<u>Chapter 5 Final Exam Review</u> <u>Discrete Probability Distributions</u>

_____ 1. The number of books in a college bookstore would be considered which type of random variable?

a. discrete b. continuous c. neither

_____ 2. Four males with an X-linked genetic disorder have one child each. The random variable x is the number of children among the four who inherit the X-linked genetic disorder. Find the mean.

	×	0	1	2	3	4
	p(x)	0.0625	0.2500	0.3750	0.2500	0.0625
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_____ 3. Find the standard deviation, σ , for a binomial distribution where n = 50 and p = 0.4. Round your answer to the nearest hundredth.

a. σ = 12.00 b. σ = 20.00 c. σ = 4.47 d. σ = 3.46

4. You roll a single die 25 times & keep track of the numbers that are rolled. Would this procedure result in a binomial distribution? If not, explain.

- a. Procedure results in a binomial distribution
- b. Not binomial; there are too many trials
- c. Not binomial; the trials are not independent
- d. Not binomial; there are more than two outcomes for each trial

5. The probability of getting more than 8 girls in 10 births was found to be 0.055. Using the Rare Event Rule of Inferential Statistics, is 8 an unusually high number of girls in 10 births?

a. No, it is not unusual b. Yes, it is unusual

6. A police department reports that the probabilities that 0, 1, 2, 3, and 4 shoplifting incidents will be reported in a given day are 0.1296, 0.3456, 0.3456, 0.1536, and 0.0256, respectively. Determine whether this is a probability distribution. If so, explain how it meets all 3 requirements. If not, identify the requirement that is not satisfied.

7. A contractor is considering a sale that promises a profit of \$38,000 with a probability of 0.7 or a loss (due to bad weather, strikes, etc.) of \$16,000 with a probability of 0.3. What is the expected profit?

8. The accompanying table describes the probability distribution for the number of males in a group of 5 that have a form of color blindness. (If necessary, round your final answers to three significant digits.)

×	<u>P(x)</u>	
0	0.659	
1	0.287	
2	0.050	
3	0.004	
4	0.001	
5	0+	

- a. Find the mean.
- b. Find the variance.
- c. Find the standard deviation.
- d. Find the expected value.

9. According to a recent Harris poll, among adults who regret getting tattoos, 20% say that they were too young when they got their tattoos. Assume that 5 adults who regret getting tattoos are randomly selected. Use a binomial probability distribution to answer the following questions. If necessary, round your final answers to 3 significant digits.

a. What is the probability of getting exactly 2 of the selected adults say they were too young to get tattoos?

b. What is the probability of getting at most 1 person say they were too young to get tattoos?

c. Find the mean and standard deviation for the number of people out of 5 who say they were too young when they got their tattoos.

d. Using the range rule of thumb, would it be unusual to get 3 people out of the 5 who say they were too young when they got their tattoos?