Name:

Elementary Statistics **HW 5.3 part 2**

For questions 1-2, determine whether the given procedure results in a binomial distribution (or a distribution that can be treated as binomial). If not, state the requirement that is not met.

1. In an Idaho Potato Commission survey of 1000 adults, subjects are asked to select their favorite vegetables and each response was recorded as "potatoes" or "other."

2. The senate consists of 83 males and 17 females. Forty different senators are randomly selected without replacement, and the gender of each senator is recorded.

For questions 3-6, assume that random guesses are made for five multiple-choice questions on the ACT test, so that there are n = 5 trials, each with a probability of success (correct) given by p = 0.20. Use the Binomial Probability table (Table A-1) to find the indicated probability for the number of correct answers.

3. Find the probability that the number x of correct answers is exactly 3.

4. Find the probability that the number x of correct answers is at least 3.

5. Find the probability that the number x of correct answers is fewer than 3.

6. Find the probability that all answers are correct.

For questions 7-10, Based on a Harris Interactive Poll, 20% of adults believe in reincarnation. Assume that six adults are randomly selected. Use the binompdf function on the main screen of the graphing calculator to find the indicated probabilities:

7. What is the probability that exactly five of the selected adults believe in reincarnation?

8. What is the probability that all six of the selected adults believe in reincarnation?

9. What is the probability that at least five of the selected adults believe in reincarnation?

10. If six adults are randomly selected, is five an unusually high number who believe in reincarnation? Why or why not?

For questions 11-14, based on a Comcast survey, there is a 0.8 probability that a randomly selected adult will watch prime-time TV live, instead of online, on DVR, etc. Assume that seven adults are randomly selected. Use binompdf on the graphing calculator to fill in the table and find the indicated probabilities for each possible random variable x:

Number of Adults who watch prime-time TV live, x	P(x)
0	
1	
2	
3	
4	
5	
6	
7	

11. What is the probability that exactly two of the selected adults watch prime-time TV live?

12. What is the probability that exactly one of the selected adults watches prime-time TV live?

13. What is the probability that fewer than three of the selected adults watch prime-time TV live?

14. If we randomly select seven adults, is two an unusually low number for those who watch prime-time TV live? Why or why not?