Name:

Elementary Statistics **Chapter 4 Test Review**

1. A multiple choice question on a statistics quiz has possible answers of a, b, c, d and e. What is the probability that "false" is the correct answer?

2. A weather reporter stated that there are 3 chances in 10 of rain today. What is the probability of no rain today?

3. If a day of the week is randomly selected, what is the probability that it is a day containing the letter y?

4. Use subjective probability to estimate the probability of randomly selecting a car and getting one that is red.

5. About 35% of the population has blue eyes.
    a. If someone is randomly selected, what is the probability that he or she does not have blue eyes?

    b. If four different people are randomly selected, what is the probability that they all have blue eyes?

    c. Would it be unlikely to randomly select four people and find that they all have blue eyes? Why or why not?

    d. What is the probability of selecting 4 people and finding that at least one has blue eyes?

6. In a jumble puzzle in the newspaper, you need to rearrange the letters in the word "CALCULATION". How many different ways can these letters be rearranged?

7. In horse racing, a trifecta is a bet that the first three finishers in a race are selected in the correct order.

    a. In a race with 10 horses, how many different trifecta bets are possible?

    b. If you randomly guess the order of the first 3 finishers in a race with 10 horses, what is the probability of winning? (Express your answer as a fraction)

8. In the Georgia Win for Life lottery, winning the top prize of $1000 a week for life requires that you select the correct six numbers between 1 and 42 (in any order). What is the probability of winning the top prize? (Express your answer as a fraction)

9. In a Rhode Island lottery, winning the top prize requires that you select the same three digits that were later drawn in the same order. If digits can be repeated, find the probability of winning this lottery. (Express your answer as a fraction.)

10. A teacher gave a project that will be presented in class. In how many different ways can the 12 projects be presented?

11. Currently the rate for sexually transmitted diseases (STD's) is 213 per 100,000 people. When testing for the presence of STD's, the Acton Medical Testing Company saves money by combining blood samples for tests. The combined sample tests positive if at least one person is infected. If the combined sample tests positive, then the individual blood tests are performed. In a given test for STD's, blood samples from 6 randomly selected people are combined.

    a. Find the probability that the combined sample tests positive with at least 1 of the 6 people infected?

    b. Is it likely that such combined samples test positive?

12. The data in the table below is a law review by Brereton and Casper to determine "Does it pay to plead guilty? Differential Sentencing and the Functioning of the Criminal Courts."

	Guilty Plea	Plea of Not Guilty
Sentenced to Prison	**392**	**58**
Not Sentenced to Prison	**564**	**14**

a. If 1 of the 1028 subjects is randomly selected, find the probability of selecting someone who was sentenced to prison.

b. If 1 of the subjects is randomly selected, find the probability of selecting someone who was sentenced to prison or entered a plea of guilty.

c. If 1 of the subjects is randomly selected, find the probability of selecting someone who entered a plea of not guilty or was not sentenced to prison.

d. If 1 of the subjects is randomly selected, find the probability of selecting someone who was sentenced to prison and entered a guilty plea.

e. If 1 of the subjects is randomly selected, find the probability of selecting someone who was not sentenced to prison and did not enter a plea of guilty.

f. If 2 different study subjects are randomly selected, find the probability that they both were sentenced to prison.

g. If 2 different study subjects are randomly selected, find the probability that they both entered pleas of not guilty.

h. Find the probability of being sentenced to prison, given that the subject entered a plea of guilty.

i. Find the probability of being sentenced to prison, given that the subject entered a plea of not guilty.

j. After comparing the results from parts b and c, what do you conclude about the wisdom of entering a guilty plea?