Name: _____ **Period: _____**

Class Work & HW

For Exercises 1 and 2, use the lines from a random number table to select numbers to use in each problem.

1. Choose 4 relatives from a group of 24 relatives.

15287 69109 65187 09154 48712 07934 63825

2. A theater coach is able to send only 5 of his 26 students to a special acting workshop. He wants to be fair and choose them randomly. Using the random number table below, which numbers will he use to help choose the students?

09364 97140 29376 30287 45008 43875 83926 31248 26075

3. At halftime of a basketball game, 8 different types of t-shirts are thrown into the crowd. Using the random number table below, how many randomly chosen t-shirts are thrown before all 8 types have been distributed?

53636 45227 45424 31115 21428 53737 82763 61732 72181

4. Your friend uses the random number table below to choose 4 baseball players from a group of 13 baseball players.

04855 91291 08956 51342 48291 18275 19172

He picks the numbers 4, 12, 8, and 11. What error did he make?

5. In each hand of a card game, there is a 54% chance of winning 3 points and a 46% chance of losing 4 points. What is the expected gain or loss on each hand?

6. On a certain test, 2 points are awarded for a correct answer and 1 point is deducted for each incorrect answer. The last time the test was given, the students answered correctly 68% of the time. What is the expected value for each question?

7. A certain basketball player has success rates of 39% for her 3-point shots and 51% for her 2-point shots. Find the expected values and compare them using <, >, or =.

3-point ___ ☐ ___ 2-point

8. In a trivia game, you answer correctly on 26% of the 5-point bonus questions, and you answer correctly on 68% of the 2-point questions. Find the expected values and compare them using <, >, or =.

5-point ___ ☐ ___ 2-point

9. Reasoning Two strategic moves in a board game have expected values of 0.9 and 0.95. Are you guaranteed to perform better by continuously using the move with the greater expected value? Why or why not?

10. A board game uses a spinner with equal-sized sections numbered 1, 2, 3, 4, 5, 6, and 7. Spinning an even number enables a player to move 2 spaces forward. Spinning an odd number makes a player move 1 space backward. What is the expected value, in fraction form, of each spin?

Identify the sampling method. Then identify any bias in each method.

11. A teacher committee wants to find how much time students spend reading each week. They ask students as they enter the library.

12. The students planning the junior class party want to know what kinds of pizza to buy. They ask the pizza restaurant what kinds sell the most.

13. The county road department wants to know which roads cause the most concern among the residents of the county. They ask the local restaurants to hand out survey forms for customers to return by mail.

Identify the type of study method described in each situation, and explain whether the sample statistics should be used to make a general conclusion about the population.

14. A company that manufactures light bulbs selects 3 bulbs manufactured each day at random. Then these bulbs are tested to see how many hours they last.

15. A food product company is researching a new artificial sweetener. The company asks 100 people at a retirement home to rate the taste of a drink on a scale from 1 to 10. Half of the people are given tea sweetened with sugar, and half are given tea sweetened with the artificial sweetener. Then the results from the two groups are averaged.

16. A high-school principal wants to determine what classes students at the school would like to see added next year. He selects every 10th student listed in the school's database and asks each of them to list the 3 classes they would most like to see added to the school's class list.

17. a. What sampling method could you use to find the percent of people in your community who support tougher penalties for running red lights?

b. What is an example of a survey question that is likely to yield unbiased information?