Name:

Elementary Statistics **HW 6.4 part 2**

Finding the sampling distribution for given statistics

A magician has asked you to choose 2 numbers out of a hat. The numbers included in the hat are {1, 2, 3, 4}.

1. Find the population mean.

2. Find the population proportion of even numbers.

3. Find the population range.

4. Complete the following table to find the sample means, proportions of even numbers, and ranges for each possible sample size of 2 (with replacement).

Sample	Probability	Sample mean	Sample proportion of even numbers	Sample range

5. Organize the table from question 4 to create a sampling distribution for the sample means.

Sample means	**Probability**

6. Find the mean of the sample means.

7. If you were to graph this sampling distribution of the sample means as a probability histogram, what would it look like?

8. Organize the table from question 4 to create a sampling distribution for the sample proportions of even numbers.

Sample proportions of even numbers	**Probability**

9. Find the mean of the sample proportions.

10. If you were to graph this sampling distribution of the sample proportions as a probability histogram, what would it look like?

11. Organize the table from question 4 to create a sampling distribution for the sample ranges.

Sample ranges	**Probability**

12. Find the mean of the sample ranges.

13. If you were to graph this sampling distribution of the sample ranges as a probability histogram, what would it look like?

14. Which of the following statistics would be considered unbiased estimators of the population parameter? Why? (mean, median, standard deviation, variance, range, proportion)