Probability Worksheet 4
Experimental and Theoretical Probability   Name _____

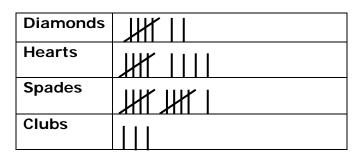   Per _____ Date _____

Amanda used a standard deck of 52 cards and selected a card at random. She recorded the suit of the card she picked, and then replaced the card. The results are in the table below.

Diamonds	~~||||~~ ||
Hearts	~~||||~~ ||||
Spades	~~||||~~ ~~||||~~	
Clubs	|||

1. Based on her results, what is the experimental probability of selecting a heart?

2. What is the theoretical probability of selecting a heart?

3. Based on her results, what is the experimental probability of selecting a diamond or a spade?

4. What is the theoretical probability of selecting a diamond or a spade?

5. Compare these results, and describe your findings.

6. Dale conducted a survey of the students in his classes to observe the distribution of eye color. The table shows the results of his survey.

Eye color	Blue	Brown	Green	Hazel
Number	12	58	2	8

   a. Find the experimental probability distribution for each eye color.

P (blue) = _____   P (brown) = _____   P (green) = _____   P (hazel) = _____

   b. Based on the survey, what is the experimental probability that a student in Dale's class has blue or green eyes?

   c. Based on the survey, what is the experimental probability that a student in Dale's class does not have green or hazel eyes?

   d. If the distribution of eye color in Dale's grade is similar to the distribution in his classes, about how many of the 360 students in his grade would be expected to have brown eyes?

Probability Worksheet 4

7. Your sock drawer is a mess! You just shove all of your socks in the drawer without worrying about finding matches. Your aunt asks how many pairs of each color you have. You know that you have 32 pairs of socks, or 64 individual socks in four different colors: white, blue, black, and tan. You do not want to count all of your socks, so you randomly pick 20 individual socks and predict the number from your results.

Color of sock	White	Blue	Black	Tan
Number of socks	12	1	3	4

A. Find the experimental probability of each:

P (white) = _____   P (blue) = _____   P (black) = _____ P (tan) = _____

B. Based on your experiment, how many socks of each color are in your drawer? Show your work!

White = _____   Blue = _____   Black = _____   Tan = _____

C. Based on your results, how many pairs of each sock are in your drawer?

White = _____   Blue = _____   Black = _____   Tan = _____

D. Your drawer actually contains 16 pairs of white socks, 2 pairs of blue socks, 6 pairs of black socks, and 8 pairs of white socks. How accurate was your prediction?