

Table Number: _____

Group Name: _____

Group Members: _____

Random Babies: Theoretical Probability

Now we'll find the theoretical probability of placing **four** babies at random to **four** moms.

To make the problem a little easier to handle we'll code the ideal placement as A B C D. (A in first position, B in second, etc.) We will find all the different arrangements of the letters A B C D, where the arrangement A B C D would mean all moms received the correct baby. An arrangement A D B C would mean only baby A was placed correctly, since only A is in its original position.

1. a) Interpret the arrangement: A C B D

b) How many correct matches does it have?

2. a) List the entire sample space below: You should have 24 different outcomes.

b. Now go back and next to each arrangement indicate how many babies were placed correctly.

3. What is the probability that all babies are given to the right mother? _____

4. a) Write each of the following probabilities as a fraction and a percent)

What is the probability that **no babies** are given to the correct mother? _____ One baby? _____

Two babies? _____ Three babies? _____ Four babies? _____

b) How do these probabilities compare to the simulated experiment?

5. a) What is the probability that at least one baby is given to the correct mother?

b) How does that compare to the cumulative proportion from the in class experiment?