SIMULATIONS PRACTICE

A, B, C

1) A fast-food restaurant includes prizes with children's meals. During the summer promotional campaign, six different prizes were available. There is an equally likely chance of getting each prize each time.

a) Describe how you could simulate this situation. What tools (manipulatives) could you use and what would you do?

b) Conduct your simulation. Include a frequency table. According to your simulation, how many children's meals must be purchased in order to get all 6 prizes?

B, C

2) There are 3 gumball machines. Each machine contains an equal number of red, blue, and yellow gumballs. If Robin gets one gumball from each machine, what is the probability that two of the gumballs will be red?

a) Describe how you could simulate this situation. What tools(manipulatives) would you use?

b) Conduct the simulation, and make a frequency table with your data.

c) What is the theoretical probability of this occurring? How close is your simulation to the theoretical probability?

ACC

3) The Cougars are one point behind in their basketball game. Carmen is fouled as time runs out. If she misses the foul shot, the Cougars lose. If Carmen makes the foul shot, the score is tied and she gets another shot. If she makes the first and second shots, the Cougars win. Carmen has a record of making three out of every four free throws. Conduct a simulation for 25 trips to the foul line.

Tell what tools you plan to use, provide your frequency table and then evaluate your results.

4) A quiz has 10 true-false questions. The correct answers are T, F, F, T, F, F, T, T, T, F. You need to correctly answer 7 or more questions to pass the quiz.

a) Is tossing a coin to decide the answers a good strategy for taking the quiz? Why or why not?

b) Make a frequency table for using a coin. Perform the experiment 3 times and then examine your results.

5) Explain how you could conduct a simulation to determine the probability of these situations:

a) Guessing the correct answer on at least 7 of 10 multiple choice questions (with answers a, b, c, d). Show what your frequency table would look like if you performed 3 simulations. You DO NOT need to perform the experiment.

b) Choosing a yellow tulip bulb from a bin if one in six of the bulbs in the bin is yellow.