MTH245 Homework 8

1. If 10 fair dice are tossed, what is the approximate probability that the sum will be 30? Set up a worksheet with a data table and pivot table to support your conclusion.

2. Danny's Deli estimates that 90% of all people entering the deli will make a purchase. If on a particular day 20 people enter the deli, what is the likelihood that 17 or more will make a purchase? Again, set up a data table and pivot table to support your conclusion.

3. The formula =60*RAND() will output a random number between 0 and 60. This can be used to simulate the time someone arrives at an airport between 1 and 2 p.m. If =60*RAND() returns the value 23.456 that would indicate a person arrived at about 1:23 p.m. (1:23:27 p.m. if you want to be fussy.) Set up two cells, each with =60*RAND() to model a situation where two people arrive at an airport between 1 and 2 p.m. Set up a third cell for the difference between the two times. Then generate a data table and pivot table to answer the question: What is the probability that the two people will arrive within ten minutes of each other?

4. A spinning top has four sides, but the top has been weighted so that it is no longer fair. The number painted on each side and the likelihood of landing on that side is given in the table.

Value	Probability
1	.2
2	.2
3	.3
4	.3

Set up an experiment to simulate spinning the top twice and the total of the two spins. Then construct a data table and pivot table to answer the question: What is the probability the total of the two spins is four or less?

5. Two fair dice are rolled for a gambling game. If the sum of the two dice is 8 or higher the player will win $5. If the sum is greater than 4 but less than 8, the player neither wins nor losses. If the score is 4 or lower the player will lose $10.

a. Create a **theoretical** distribution table for these three outcomes. (Hint, you may want to look back at the Probability Reading.)

b. Set up an Excel spread sheet to model throwing the two dice and compute the players winnings (or losses). Run at least 1000 iterations of this simulation and create an **empirical** probability table.

c. How do your two results compare?

d. What is the most likely result if this game is played? What is the least likely? Do you think it would "pay" to play this game?