Name_____ Period _____
Algebra 2 Circle: AC or BD

Long-term Assignment #2 ***Due***_____
22 total points

1) Jeffrey is taking a 10-question true-false test. He didn't study and doesn't even have a reasonable guess on any of the problems. He answers "True" or "False" at random.

   a. Decide how to use a coin to conduct one run that models the results of this true-false test. (2 points)

   b. Considering the Law of Large Numbers, should Jeffrey prefer a true-false test with many questions or with few questions? ***Explain your reasoning***. (3 points)

2) The winner of the baseball's World Series is the first of the two teams to win four games.

   a. What is the fewest number of games that can be played in the World Series? ***Explain.*** (2 points)

   b. What is the greatest number of games that can be played in the World Series? ***Explain.*** (2 points)

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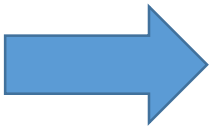
c. Suppose that the two teams in the World Series are **evenly matched**. Describe how to use a table of random digits to conduct one run simulating the number of games needed to win a World Series. (2 points)

d. Conduct 5 runs. Complete the frequency table shown below and add your 5 results so that there is a total of 100 runs. (1 point)

Number of Games Needed in the Series	Frequency (Before)	Frequency (After)
4	11	
5	21	
6	30	
7	33	
Total Number of Runs	95	100

e. What is your estimate of the probability that the series will go 7 games? (1 point)

f. By how much did your 5 results change the probability that the series will go 7 games? What can you conclude from this? (2 points)



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3) About 42% of violent crimes in the United States are committed by someone who is a stranger to the victim. Suppose that you select four violent crimes at random and count the number committed by strangers.
    a. Describe how to use the **randInt** function of your calculator to conduct one run that simulates this situation. (2 points)

    b. Conduct 10 runs using the calculator function and place the results in a frequency table that shows how many of the four violent crimes were committed by strangers. (2 points)

    c. What is your estimate of the probability that at least half of the four violent crimes were committed by strangers? ***Show work or explain your reasoning***.(3 points)