A.P. Statistics
Assignment 5-1

<u>Remember to show your thinking through your work.</u>

1) Imagine taking a 10 question true or false exam. You randomly guess at each
   question. Don't do any calculations, just tell me your gut sense.
   a. Is this a binomial setting?

   b. How many questions do you think you will get correct?

   c. How surprised would you be if you passed (6 out of 10 correct or better)
      the exam?

   d. How surprised would you be if you got an 'A' on the exam (9 or 10 out of
      10)?

2) In creating a video game you program a basketball player to have a 70% chance
   of making a free throw.
   a. Design and conduct a simulation to simulate the number of free throws
      made in a game if they shoot 6 free throws. Repeat the simulation for a
      total of 5 times. . Use the following digits:
      18974 15864 63856 64877 06156 45468

   b. How many free throws do you expect them to make?

3) Is the following situation a binomial setting? Explain how it does or does not meet
   the conditions of a binomial setting. Draw a single card from a standard deck of
   cards. Observe the card and then replace it. Count the number of times you draw a
   card like this until you get a seven.

4) Is each of the following scenarios a binomial setting? If not, describe why not.
   a. Honda motorcycles pulls one motorcycle off the assembly line each hour to conduct a thorough quality control inspection. One variable recorded is the total number of visual defects to the finish (scratches, imperfections, etc.)

   b. Mr. Rye buys one Lotto ticket each week (actually he doesn't but we can pretend). X is the number of times he wins a cash prize in a year.

   c. Leslie is doing a science fair project on batteries. She is going to measure X: how many brand new batteries must be purchased and tested before a defective one is found.

   d. 40 students take an A.P. Statistics class online and subsequently take the A.P. exam in May. Let X be the number of students who pass (score a 3, 4, or 5) the exam.