AP Stat	Name:
Ch. 8.3- Practice	Date: Pd:

1. Determine if the following situation is geometric or not. Explain your reasoning.
A popular brand of cereal puts a card with 1 of 5 famous NASCAR drivers in each box. There is a ⅕ chance that any particular driver's card ends up in any box of cereal. Buy boxes of the cereal until you have all 5 drivers' cards.

2. Determine if the following situation is geometric or not. Explain your reasoning.
In the game of 4-Spot Keno, Lola picks 4 numbers from 1 to 80. The casino randomly selects 20 winning numbers from 1 to 80. Lola wins money if she picks 2 or more of the winning numbers. The probability this happens is 0.259. Lola decides to keep playing games until she wins some money.

3. As a special promotion for its 20oz. Bottles of soda, a soft drink company printed a message on the inside of each cap. Some of the caps said, "Please try again" while others said, "You're a winner!" The company advertised the promotion with the slogan "1-in-6 chance of being a winner." You decide to keep buying one 20oz bottle of soda until you get a winner.

a. Find the probability that you buy exactly 5 bottles. Show work.

b. Find the probability that you buy no more than 8 bottles. Show your work.

c. Find the probability that you have to buy more than 8 bottles. Show your work.

4. To start his old lawn mower, Alex has to pull a cord and hope for some luck. On any particular pull, the mower has a 20% chance of starting.

a. Find the probability that it takes him exactly 3 pulls to start the mower.

b. Find the probability that it takes him more than 10 pulls to start the mower. Show your work.

5. Emily decides to keep placing a $1 bet on number 15 in consecutive spins of a roulette wheel until she wins (she may have a small gambling problem). On any soin, there's a 1-in-38 chance that the ball will land in the 15 slot.

a. What is the probability she will win for the first time on the 15th spin?

b. What is the probability it will take her more than 15 spins to win for the first time?

c. Emily believes she has a 50% chance of winning for the first time in 7 spins or less of the roulette wheel. This is why she uses this strategy. Should she change her strategy? Explain using probabilities.