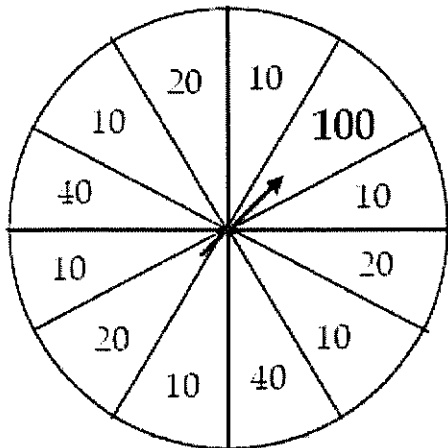


**Ch 13 Practice EXAM**

Read all direction carefully. Show work and use correct notation. Give precise answers.

A sporting goods store announces a "Wheel of Savings" sale. Customers select the merchandise they want to purchase, then at the cash register they spin a wheel to determine the size of the discount they will receive. The wheel is divided into 12 regions, like a clock. Six of those regions are red, and award a 10% discount. The three white regions award a 20% discount and two blue regions a 40% discount. The remaining region is gold, and a customer whose lucky spin lands there gets a 100% discount - the merchandise is free! *Show your work.*



- 1) What is the probability that a customer gets at least a 40% discount?
  
- 2) What is the probability that two customers in a row get only 10% discounts?
  
- 3) What is the probability that three consecutive customers all get 20% discounts?
  
- 4) What is the probability that none of the first four customers gets a discount over 20%?
  
- 5) What is the probability that the first gold winner (100%) is the fifth customer in line?
  
- 6) What is the probability that there is at least one gold winner among the first six customers?
  
- 7) As you wait your turn in line there are three gold winners in a row. A lively discussion ensues between the next two customers. One thinks that streak about kills her chances of winning free merchandise, as the wheel won't come up gold again for a very long time. The other says that the wheel is clearly on a hot streak, so they are lucky to be next in line. Comment on their opinions.

8) Define the following words:

- a. Independent event vs. Dependent event
  
- b. Disjoint (mutually exclusive)
  
- c. Law of Large Numbers
  
- d. Theoretical Probability vs. Experimental Probability

9) Give an example scenario and answer to each rule:

a. Complement Rule

b. Addition Rule

c. Multiplication Rule