Name:

Elementary Statistics

- 1. Based on a Saint Index survey, when 1000 adults were asked to identify the most unpopular projects for their hometown, 54% include Wal-Mart among their choices.
 - a. What is wrong with letting p denote the probability of getting an adult who includes Wal-Mart while x counts the number of adults who do not include Wal-Mart?
 - b. If 30 different adults are randomly selected from the 1000 surveyed, would these selections be independent? Can they be treated as being independent?

For questions 2-4, determine whether the given procedure results in a binomial distribution (or a distribution that can be treated as binomial). If not, state the requirement that is not met.

- 2. The YSORT method of gender selection, developed by the Genetics & IVF Institute is designed to increase the likelihood that a baby will be a boy. When 291 couples use the YSORT method to give birth to 291 babies, the genders of the babies are recorded.
- 3. In an Idaho Potato Commission survey of 1000 adults, subjects are asked to select their favorite vegetables, and responses of potatoes, corn, broccoli, tomatoes, and "other" were recorded.
- 4. In a consumer reports survey, 427 different women are randomly selected without replacement, and each woman is asked what she purchases online. Responses consist of whether or not clothing was identified.

Based on data from the Greater New York Blood Program, when blood donors are randomly selected, 45% of them have blood that is Group O. Use this information and the binomial probability formula to answer questions 5-6:

Binomial Probability Formula:
$$P(x)=rac{n!}{(n-x)!x!}(p)^x(q)^{n-x}$$

If the number of blood donors is 16, find the probability that the number with Group O blood is
6.

 If the number of blood donors is 20, find the probability that the number with Group O blood is 16.