

Table Number: \_\_\_\_\_

Group Name: \_\_\_\_\_

Group Members: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Basic Probability

1. If you draw one card randomly from a standard 52-card playing deck, what is the probability that it will be a:
  - a. spade?
  
  - b. red card?
  
  - c. face card (jack, queen, or king)?
  
  - d. 7?
  
2. Suppose you roll a fair die one time. What is the probability of obtaining
  - a. An even number?
  
  - b. A number less than 4?
  
  - c. A number no more than 3?
  
  - d. A number that is at least a 2?
  
3. An exam consists of 20 multiple choice questions. Each of the answers is either right or wrong. Suppose we consider the number of WRONG answers as the outcome of interest. Name the possible outcomes for each of the following events.
  - a. A student makes more than 11 mistakes
  
  - b. A student makes no more than 11 mistakes
  
  - c. A student makes at least 11 mistakes.
  
  - d. Are any two of the above complementary? If so, which? Explain.

A *sample space* is a list of all possible (and equally likely) outcomes.

4. The sample space of an experiment where a fair coin is flipped twice is the following. Suppose H stands for heads and T stands for tails. The outcomes are equally likely.

*HH, HT, TH, TT*

What is the probability of obtaining:

- a. Exactly 1 head?
  - b. At least one head?
  - c. No more than one head?
5. Write the sample space of all possible sequences for a family of three children. You should get 8 possible outcomes. The first is done for you.

G G G

- a. What is the probability of having exactly 2 boys?

- b. What is the probability of having all girls?

- c. What is the probability of having at least one girl?