Exercise 7.1

1. What is the probability that a card selected at random from a standard deck of 52 cards is an ace?

3. What is the probability that a randomly selected integer chosen from the first 100 positive integers is odd?

24. Find the probability of winning a lottery by selecting the correct six integers, where the order in which these integers are selected does not matter, from the positive integers not exceeding

a) 30.

33. What is the probability that Abby, Barry, and Sylvia win the first, second, and third prizes, respectively, in a drawing if 200 people enter a contest and

a) no one can win more than one prize.

b) winning more than one prize is allowed.

Exercise 7.2

1. What probability should be assigned to the outcome of heads when a biased coin is tossed, if heads is three times as likely to come up as tails? What probability should be assigned to the outcome of tails?

3. Find the probability of each outcome when a biased die is rolled, if rolling a 2 or rolling a 4 is three times as likely as rolling each of the other four numbers on the die and it is equally likely to roll a 2 or a 4.

23. What is the conditional probability that exactly four heads appear when a fair coin is flipped five times, given that the first flip came up heads?