Probability Introduction

1. A standard deck of cards has the following properties.
   - 52 cards
   - 4 suits: hearts ♡, spades ♠, clubs ♣, and diamonds ♢
   - Hearts and diamonds are red. Spades and clubs are black
   - 13 cards of each suit: 2 − 10, J, Q, K, and ace
   - 4 cards of each rank: 2 − 10, J, Q, K, and ace
   - J, Q, and K are face cards

   a) How many red cards are in a deck?

   b) How many kings (K) are in a deck?

   c) How many face cards are in a deck?

   d) How many black 10s are in a deck?

   e) How many 3♡ cards are in the deck?

   f) How many cards are there that are not ♣?

2. You draw one card from a standard deck. What are the chances of the following events?
   a) Top card is is a ♡

   b) Top card is black

   c) Top card is an ace

   d) Top card is a face card

   e) Top card is not a face card

   f) Last card is a 3

   g) Last card is a not a face card

   h) Last card is a K or Q

   i) Last card is a K♣

   j) Last card is a number less than 7

   k) A randomly drawn card is the Q♡

3. A fair, six-sided die is rolled once. What are the chances of the following events.

   a) an even number

   b) a number less than 3

   c) a number less than or equal to 3

   d) a five

4. A box contains the following numbered tickets: 0, 0, 1, 1, 1, 2, 2, 2, 2, 2. One ticket is drawn at random. What are the chances of the following events.

   a) the ticket is a 0

   b) the ticket is a 1

   c) the ticket is a 2

   d) the ticket is even

   e) the ticket is less than 2

5. Two fair, six-sided dice are rolled. What are the chances of the following events.

   a) double-sixes

   b) double-twos

   c) the sum is 3 or less

   d) the sum is greater than 3

   e) the sum is 4 or less

   f) the sum is greater than 4

   g) the sum is even

   h) doubles