

**Problem 1.** A bin contains 3 red balls, 5 blue balls, and 7 white balls. Three balls are drawn at random.

(a) Count the number of possible outcomes.

(b) Find the probability of drawing white balls.

(c) Find the probability of drawing one ball of each color.

**Problem 2.** Three dice of different colors are rolled.

(a) Count the number of possible outcomes (ordered with replacement).

(b) Find the probability that all three dice have the different values.

(c) Find the probability that exactly two of the dice have the same value.

**Problem 3.** A coin is flipped ten times.

(a) Count the number of possible outcomes (ordered with replacement).

(b) Find the probability that at least eight are heads.

**Problem 4.** A bin contains 10 ping pong balls numbered 1 through 10. Five of them are drawn at random, one at a time, and placed in order.

(a) Count the number of possible outcomes (ordered without replacement).

(b) Find the probability that the numbers on the balls are in increasing order.

**Problem 5.** Five cards are dealt from a shuffled deck and placed in a pile, so the order does not matter.

(a) Count the number of possible outcomes (unordered without replacement).

(b) Find the probability of dealing a flush (all cards are from the same suit).