Axioms of probability.

1. On the counter there are 60 good and 20 rotten apples. David picks 6. How likely what he has 3 good and 3 rotten apples?

2. A box contains 3 red, 4 blue and 5 green balls. 4 balls are chosen at random without replacement. Find the probability that the same number of red and green balls are chosen.

3. A coin is tossed until a head appears. What is the probability that more than 3 tosses will be necessary?

4. Given 6 strangers what is the probability that two have birthdays the same month?

5. In a certain company 40 % of the employees play computer games during the worktime, 90 % browse Internet and 38 % do both. What percentage of the staff does neither?

6. Among clients of a certain store 47% have Visa, 41% have Master-card, 23% have Discovery card, 10% have both Visa and Mastercard, 12% have both Visa and Discovery card, 11% have both Mastercard and Discovery card and 5% have all three card. What percentage of clients have
   (a) neither card?
   (b) Discovery only?

7. In a certain sport club 40% of patrons play tennis, 30% play volleyball, 32% play ping-pong, 60% play tennis or volleyball, 60% play tennis or ping-pong, 50% play ping-pong or volleyball and 3% play both volleyball and tennis but not ping-pong. What is the probability that a random patron
   (a) plays at least one game?
   (b) plays only ping-pong?

8. David went on a trip. He has 15 (different) pairs of socks in the closet. Being in a harry he took 8 random socks. What is the probability that he has exactly 1, 2, 3, 4 pairs?

9. (a) David plays bridge in a pair with Cindy. What is the probability that in a certain round they have no aces?
   (b) If they play 10 deals what is the probability that this happens exactly twice?

10. Bob wrote checks to his water company, gas company, electric company, trash collectors and two credit card companies. Being absent minded he put these checks randomly to 6 envelops provided. What is the probability that at least one of his creditors got the right check?

11. *Cindy has 3 math books, 3 physics books, 3 chemistry books and 3 novels. If she puts them on the shelf in a random order what is the probability that for at least one of the subjects all three books will be in a row?*

12. *In a standard 52 deck cards what is the probability that there are two aces in a row?*