Exercise 1

A coin is tossed four times. Calculate the probability of obtaining more heads than tails.

Exercise 2

An agent sells life insurance policies to five equally aged, healthy people. According to recent data, the probability of a person living in these conditions for 30 years or more is 2/3. Calculate the probability that after 30 years:

1. All five people are still living.

2. At least three people are still living.

3. Exactly two people are still living.

Exercise 3

If from six to seven in the evening one telephone line in every five is engaged in a conversation: what is the probability that when 10 telephone numbers are chosen at random, only two are in use?

Exercise 4

The probability of a man hitting the target at a shooting range is 1/4. If he shoots 10 times, what is the probability that he hits the target exactly three times? What is the probability that he hits the target at least once?

Exercise 5

There are 10 red and 20 blue balls in a box. A ball is chosen at random and it is noted whether it is red. The process repeats, returning the ball 10 times. Calculate the expected value and the standard deviation of this game.