

Homework 1

Problem 1

(1 point) Sixteen volleyball teams are randomly divided into two groups of eight. What is the probability that the two best teams are placed in different groups?

Problem 2

(1 point) Of the 20 clocks received for repair, 8 require a general cleaning of the mechanism. What is the probability that among 3 clocks taken at random simultaneously, at least two require a general cleaning of the mechanism?

Problem 3

(1 point) There are 20 people at a chess club on a certain day. They each find opponents and start playing. How many possibilities are there for how they are matched up, assuming that in each game it does matter who has the white pieces (in a chess game, one player has the white pieces and the other player has the black pieces)?

Problem 4

(1 point) What is the probability that a point thrown at random into a circle will land inside the square inscribed in it?

Problem 5

(2 points) Seven passengers were sold 7 tickets in a compartment carriage (9 compartments with 4 seats each). Find the probabilities that the passengers got into:

- a) two compartments;
- b) seven compartments;
- c) three compartments. Be careful with the counting!

Problem 6

(2 points) There are two gold-bearing regions, each divided into four plots. According to forecasts, the first region contains three gold-bearing plots, and the second contains two, but it is not known which ones specifically. A region is chosen at random, and then one plot is randomly purchased within it; this plot turns out to be gold-bearing.

What is the probability of a second successful purchase under the same conditions (i.e., choosing a random plot in the same region)?