

Probability Calculus 2021/2022, Homework 1 (two problems)

Name and Surname Student's number

In the problems below, please use the following: as k – the sum of digits in your student's number; as m – the sum of the two largest digits in your student's number; and as n – the smallest digit in your student's number plus 1. For example, if an index number is 609999: $k = 42$, $m = 18$, $n = 1$.

Please write down the solutions (transformations, substitutions etc.), and additionally provide the final answer in the space specified (the answer should be a number in decimal notation, rounded to four digits).

1. We draw $n + 2$ numbers from the set $\{1, 2, \dots, 2k\}$, without replacement. Calculate the probability of the event that all drawn numbers will be odd or one of the numbers will be equal to $2m + 1$.

ANSWER:

Solution:

2. There are k cubic dice in a box: m of them are regular, and $k - m$ are false, with sixes on all sides. We repeat the following experiment $n + 1$ times: we draw a die (with replacement) and roll it once. Calculate the probability we only drew regular dice, if we know that we obtained sixes in all the rolls.

ANSWER:

Solution: