

Probability Calculus 2019/2020, 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  $m + 5$  cards from a deck of 52 cards, without replacement. Calculate the probability that exactly  $n + 3$  figures were drawn and there are at most 3 spades among these figures. (An ace is a figure).

ANSWER:

Solution:

2. We draw a number from the set  $\{1, 2, \dots, m\}$ ,  $2n + 2$  times, with replacement. Calculate the probability that exactly two numbers drawn are equal to  $n$  and exactly half of the numbers are even.

ANSWER:

Solution: