

Mathematical Statistics 2018/2019, Homework 6

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).*

6. A researcher wants to find a  $(100 - n)\%$  confidence interval for the average amount of time undergraduate students spend weekly on social media activities. Existing research on social media participation suggests that generally the time spent follows a normal distribution and the average time spent varies with age, but the variance of time spent does not vary and amounts to  $m$  hours. What is the minimum number of students who should be interrogated in order to obtain a confidence interval of width not exceeding  $\frac{k}{10}$ ? In a subsequent study of  $10n$  students, the average weekly time spent on social media amounted to  $k$  hours. Find the realization of the  $(100 - n)\%$  confidence interval for the mean time.

ANSWER:

number of students:	CI:
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Solution: