

Mathematical Statistics 2017/2018, Homework 9 (One problem)

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 largest digit in your student's number; and as n – the smallest digit in your student's number plus 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).

10. The price levels of hostel beds were studied in four summer resorts. Basic characteristics for the collected data are summarized in the table below:

sample stats\ city	A	B	C	D
average price (in dollars, per bed)	$k + m$	k	$k - m$	$k + 1$
variance of price (unbiased estimator)	$k^2 - 6m$	$k^2 - 6m$	$k^2 - 7m$	$k^2 - 7m$
sample size	$5m$	$40n - k$	k	$5m$

Assuming that the prices in different cities are independent and follow normal distributions with unknown means and a common variance, verify the hypothesis that the average price levels in the four cities are equal, for a significance level $\alpha = 0.1$.

ANSWER:

Critical region
of the test:

Value of
test statistic:

Reject null?
(YES/NO):

Solution: