MATH 252-01: Probability and Statistics II

Problem Set 7

Assigned 2016 October 13
Due 2016 October 25

Show your work on all problems! If you use a computer to assist with numerical computations, turn in your source code as well.

1 Devore Chapter 9, Problem 40

2 Devore Chapter 9, Problem 50

3 Devore Chapter 9, Problem 60

Extra Credit: In addition to using Devore's Table A.9 to constrain the P-value to a range, use a statistical software package to find the actual values to three significant figures.

4 Computational Exercise

Download the following data sets:
`http://ccrg.rit.edu/~whelan/courses/2016_3fa_MATH_252/data/ps07_prob4_set1.dat`
`http://ccrg.rit.edu/~whelan/courses/2016_3fa_MATH_252/data/ps07_prob4_set2.dat`
using the username and password given in class.

Assuming that these represent paired data drawn a bivariate normal distribution with means μ_1 and μ_2, variances σ_1^2 and σ_2^2 and correlation coëfficient ρ, all unknown, find a 95% confidence interval for the difference of the means $\mu_1 - \mu_2$, and determine the P-value for the null hypothesis H_0: $\mu_1 = \mu_2$ in light of the alternative hypothesis H_a: $\mu_1 \neq \mu_2$.