

STA437/2005 Methods for Multivariate Data

Assignment #1

Due: October 27, 2014 by the beginning of class

Note. Only some problems will be marked!

Note. Textbook dataset can be downloaded from

http://media.pearsoncmg.com/ph/esm/statistics_datasets/johnson_amsa6e/johnsonwichern_datasets.zip

Problem 1. Solve Exercise 4.12 in textbook.

Problem 2. Solve Exercise 4.40 in textbook.

Problem 3. Solve Exercise 4.41 in textbook.

Problem 4. Solve Exercise 5.28 in textbook.

Problem 5. Solve Exercise 5.30 in textbook.

Problem 6. Solve Exercise 5.31 in textbook.

Problem 7. Let $Z \sim N_p(O, I_p)$. A matrix $A \in \mathbb{R}^{p \times p}$ satisfies $A^2 = A$ and $\text{rank}(A) = k$. Show that $Z^\top A Z \sim \chi^2(k)$.