

Homework 11 - Due Monday, May 4

Do Problems 10.89, 10.90, 10.96, 10.98, 10.102, 10.105, 10.106 and the problem below

Homework should be written neatly and clearly explained. If it requires more than one sheet, the sheets must be stapled. Include your name and id number in the top right corner of your homework.

Problem 1. Let X_1, X_2, \dots, X_n be a random sample from the probability density function given by

$$f(x|\theta) = \begin{cases} \frac{2x}{\theta^2}, & 0 \leq x \leq \theta \\ 0 & \text{otherwise} \end{cases}$$

with θ an unknown positive constant. Find the uniformly most powerful α -level test for testing $H_0 : \theta = \theta_0$ against $H_a : \theta < \theta_0$.