

Homework 2 - Due Friday, Sept. 7

Do Problems 8.8, 8.10, 8.13, 8.15, 8.27, 8.28, 8.31, 8.36 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 Y_1, Y_2, \dots, Y_n denote a random sample of size n from a population with a uniform distribution on the interval $(0, \theta)$. Consider $Y_{(n)} = \max(Y_1, Y_2, \dots, Y_n)$, the largest order statistic.

1. Compute $\mathbb{E}[Y_{(n)}]$.
2. Find a constant c such that $cY_{(n)}$ is an unbiased estimator of θ .
3. Compute $MSE(cY_{(n)})$, with the c you found in part 2.