Stat 252 Winter 2007
Assignment #5

This assignment is due at the beginning of class on Monday, February 26, 2007. You must submit all problems that are marked with an asterix (*).

1. Do the following exercises from Wackerly, et al.

- #8.40, 8.41, page 384
- #8.6, page 368
- #8.8, 8.9, page 369
- #8.34, page 380

2. Do the following exercises from Wackerly, et al.

- #8.4, page 368; #9.1, page 419
- #9.7, page 420 (It is important to realize when you can cite previous results and when you need to derive things from scratch. Note that $Y_{(1)} = \min\{Y_1, \ldots, Y_n\}$.)

3. * Suppose that $Y_1, \ldots, Y_n$ are i.i.d. Uniform$(0, \theta)$ and let $\hat{\theta}_1 = 2\overline{Y}$. If $\hat{\theta}_3 = \frac{(n+1)}{n} \max\{Y_1, \ldots, Y_n\}$, compute Eff$(\hat{\theta}_1, \hat{\theta}_3)$. In this case, which of $\hat{\theta}_1$ and $\hat{\theta}_3$ is preferred for the estimation of θ?

4. * Suppose that the random variable Y has density given by

$$f_Y(y|\theta) = \theta^2 e^{-\theta^2 y}, \quad y > 0$$

for some parameter $\theta > 0$. Calculate $I(\theta)$, the Fisher information.

5. * Exercises 1, 2, 3, 5 on *The Standard Normal Distribution Function* handout

6. * Exercises 1, 2 on *The Incomplete Gamma Function* handout