Stat 252 Winter 2006
Assignment #6

This assignment is due at the beginning of class on Monday, February 27, 2006. You must submit all problems that are marked with an asterix (*).

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

- #8.39, 8.40, 8.41, page 384
- #8.6, page 368
- #8.8, 8.9, page 369
- #8.34, page 380
- #8.58, page 398

2. * Consider a random variable Y with density function

$$f(y|\theta) = \frac{e^{(y-\theta)}}{\left[1 + e^{(y-\theta)}\right]^2},$$

where $-\infty < y < \infty$, and $-\infty < \theta < \infty$. Using the pivotal method to verify that if $0 < \alpha_1 < 1/2$ and $0 < \alpha_2 < 1/2$, then

$$\left(\; Y - \log\left(\frac{1-\alpha_2}{\alpha_2}\right), Y - \log\left(\frac{\alpha_1}{1-\alpha_1}\right) \; \right)$$

is a confidence interval for θ with coverage probability $1 - (\alpha_1 + \alpha_2)$.

3. Do the following *enrichment* exercises from Wackerly, et al.

- #8.109, page 414
- #8.113, page 414
- #8.116, page 415

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

- #8.4, page 368; #9.1, page 419
- #9.4, page 420 (Also, explain WHY the text writes "that this implies that $\hat{\theta}_2$ is a markedly superior estimator.")
- #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 $Y_{(1)} = \min\{Y_1, \ldots, Y_n\}$.)