Stat 538 Take-Home Exam 10/12/04. Due in lab 10/21/04.

You should not need the computer on these problems. All work is to be your own.

1. Do problems 2.70, 71, and 72 p. 66 of SW. Answer those questions, as well as this one: So you see any problem using $\bar{Y}$ and S to summarize this data set?

2. Do problem 3.11 p. 88 of SW.

3. Do problems 3.46 and 3.47 p. 117-8 of SW.

4. Do problems 4.41, 42, and 43 p. 147 of SW. Answer those questions as well as this one: What is the 90$^{th}$ percentile of the heart rate distribution?

5. Do problem 67 p. 217 of SW.

Further consider this associated hypothesis testing problem: Construct a formal hypothesis test at $\alpha = .10$ of $H_0: p = .2$ vs $Ha: p \neq .2$. Explain how the answer to 67 agrees with this. Calculate the P-value.

Now consider this hypothesis testing problem: Construct a formal hypothesis test at $\alpha = .05$ of $H_0: p = .2$ vs $Ha: p < .2$. Calculate the P-value.

6. Do problem 68 p. 218 of SW.

Further consider this associated hypothesis testing problem: Construct a formal hypothesis test at $\alpha = .05$ of $H_0: \mu = 144$ vs $Ha: \mu \neq 144$. Explain how the answer to 68 agrees with this. Calculate the P-value.

Now consider this hypothesis testing problem: Construct a formal hypothesis test at $\alpha = .05$ of $H_0: \mu = 146$ vs $Ha: \mu < 146$. Calculate the P-value.