Problem Set 1
CHM 6461
Spring 2015, Dr. Chatfiel
Due date: Thurs, Feb. 7

Problems in McQuarrie, Chapter 1:

25. This will be good practice for thinking about degeneracies. Note that the result from problem 1.24 is needed.
29. This will help you recall your thermodynamics.
46. Helps you get thinking statistically.
51. Application of Lagrange's method to statistical thermodynamics.
56. More good practice with thermodynamics, plus helps get your mathematical brain thinking in ways we will need. For the Debye model, just worry about the high-temperature limit. If you want to work on the low-temperature limit for fun, go for it.

Problems in McQuarrie, Chapter 2:

5. To make a connection with information theory and a famous equation.
6. Ditto, and for practice with Lagrange's method.
14. Looking ahead and connecting with thermodynamics.

To get your brain working in a stat thermo way:

A game for two players consists of player A selecting four different integers, and listing them horizontally on a piece of paper, for example:

1958 1000 2 16

He then reads his selections, one at a time, from left to right, to player B, who may at each stage either declare the integer just read as the largest of the four, or ask A to continue. B wins if he does indeed pick out the largest integer (it is understood, of course, that, once he has allowed A to continue, he cannot then make his selection from earlier entries on the list).

What is B's best strategy for winning?