

# Physics A410: Thermal Physics

## Problem Set 9

Assigned 2004 March 23

Due 2004 March 30

**Show your work on all problems!** Be sure to give credit to any collaborators, or outside sources used in solving the problems.

### **1 Schroeder 4.7**

### **2 Schroeder 4.15**

### **3 Thermodynamic Potentials**

Consider one mole of helium at a temperature of 300 K and a pressure of 1 atm. Compute the total energy (kinetic only, neglecting atomic rest energies), entropy, enthalpy, Helmholtz free energy, and Gibbs free energy. Express all answers in SI units.

### **4 Schroeder 5.12**