Physics 214A
Problem Set 4
Fall 1997

Problem 12.

A small system is separated from a large one by a piston. The two systems are at the same temperature. Find the density matrix for the small system. Obtain the thermodynamical relations from the new thermodynamic potential.

Problem 13. Pathria 4.1

Problem 14

Using the ensemble of your choice, work out the thermodynamics of a <u>two</u> dimensional ideal gas. In particular find the equation of state and the specific heat as a function of temperature.

Problem 15. Pathria 4.7 (Use the grand canonical ensemble)