

PHYS-552: Advanced Statistical Mechanics

March 29, 2012

Due date: 5th of April, 2012

1 Three little quantum particles in a box

Compute the partition function of three particles in a box with volume $V = L^3$ for the bosonic and fermionic cases. Discuss the high temperature limit. Assume the particles are spinless and that the walls of the box are infinitely hard. Compute also the density matrix for this system.

2 Pathria & Beale: Problem 6.2

3 Pathria & Beale: Problem 6.3

4 Pathria & Beale: Problem 6.21