

Problem Set # 8 (full) P556

Note the first two problems were handed out on Wed.

Due 4/4/05 Monday

① Problem 8.3 in Huang on p 191

② Problem 8.6 on p 192

also do ~~the~~

③ Problem 7.3 on page 167
where you only need to calculate C_V
for the system.

④ Show if the occupation number n of an energy level ϵ is restricted to the values $0, 1, 2, \dots, l$ then the mean occupation number is

$$\langle n \rangle = \frac{1}{z^{-1} e^{\beta \epsilon} - 1} - \frac{l+1}{(z^{-1} e^{\beta \epsilon})^{l+1} - 1}$$

where $\beta = 1/kT$ and z is $e^{\beta \mu}$. Check the
Fermi $l=1$ and Bose $l=\infty$ limits.

⑤ Problem 11.1 on page 276

⑥ Problem 11.15 \equiv 11.5 on page 277