

PHY410 Homework Set 6

1. [5 pts] In class we found the chemical potential of an ideal gas by differentiating the Helmholtz free energy with respect to particle number, at constant temperature and volume. Now find the chemical potential of an ideal gas by differentiating the energy with respect to particle number, at constant entropy and volume.
2. [5 pts] Kittel-Kroemer, problem 5-3. The potential contribution to the heat capacity includes the effect of the gas getting raised, on the average, in the vertical direction as the temperature increases.
3. [5 pts] Kittel-Kroemer, problem 5-4.
4. [5 pts] Kittel-Kroemer, problem 5-6.
5. [5 pts] Kittel-Kroemer, problem 5-7.
6. [5 pts] Kittel-Kroemer, problem 5-10.