

Physics 831 - 2002

Statistical Physics

Problem Set 1

1. Consider a simple Carnot cycle for a one-atomic ideal gas. The cycle consists of two isothermal and two adiabatic transformations, see Fig. 1.4. Find η in terms of T_1 and T_2 . (5 pt)
2. Problem 1.1 (5 pt)
3. Problem 1.2 (6 pt)
4. Prove the Lemma on p. 20 (5 pt)
5. Problem 1.3 (6 pt)
6. Problem 1.5 (6 pt)

The problems are from Kerson Huang, *Statistical Mechanics*, 2nd edition, (Wiley, NY 1987).