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 $\eta$ 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)