PHY 3513 Fall 1998 – Homework 5

Due at the start of class on Friday, October 2.

Answer all questions, including any additions to textbook problems. Please explain your reasoning and show all working, write neatly and remember to include your name on the front page of your answers.

1. Callen Problems 2.2-1, 2.2-2, and 2.2-3. These problems are closely related and should be thought of as a single, multi-part problem.

2. Callen Problem 2.3-5. The fundamental equation given by Callen is dimensionally incorrect. Before doing the problem, fix up the equation by inserting appropriate factors of R, θ, and v_0 (positive constants which have units of entropy/mole, temperature, and volume/mole, respectively).

3. Callen Problem 2.6-4. Work with symbols (instead of numbers) until the last possible moment.

   Hint: Before attempting the assigned problem, you might want to see whether you can reproduce the result Callen gives for Problem 2.6-3. (Don't turn in the practice problem, though.)

4. Callen Problem 2.7-2. Work with symbols (instead of numbers) until the last possible moment.