PHY 227 Problem Set 2 (Due 6pm 2/14/14 PHY227)

1. Book Problem 3.1

2. Book Problem 3.2

3. Book Problem 3.3

4. Book Problem 3.9

5. Book Problem 3.10

6. From the Sackur-Tetrode equation, it would appear that the entropy can become negative for a certain range of temperatures. Suppose you consider a Helium gas at room temperature $(T = 300K)$ and atmospheric pressure $(10^5$ Pa), and allow the temperature to vary keeping the density fixed. For what range of T does the entropy become negative? What is your interpretation of this?

7. Book Problem 4.1

8. Book Problem 4.5