

Physics 317

Homework #7 – **Due in class, Fri Nov 4**

Hint: Read Chaps 7 & 10 in Baierlein

Also, read Chapter 11 in Zemansky,

1. Baierlein Chap 7, #1
2. Baierlein Chap 7, #4
3. Baierlein Chap 7, #5

4. Identify Fig 11-3 in Zemansky to the VAT-VUS diagram Dr. Patch described in lecture Oct 28.

5. Zemansky problem 11-2

6. An ideal monatomic gas expands quasi-statically to twice its volume. If the process is isothermal, the work done by the gas is W_i . If the process is adiabatic, the work done by the gas is W_a . Which of the following is true?
 - a. $W_i = W_a$
 - b. $0 = W_i < W_a$
 - c. $0 < W_i < W_a$
 - d. $0 = W_a < W_i$
 - e. $0 < W_a < W_i$

7. (GRE question) A system consists of N weakly interacting subsystems, each with two internal quantum states with energies 0 and ϵ . Write down a formula for the internal energy for the system at absolute temperature T .