

Due Friday, 9/17/99, in class.

Show your work. Problem sets will be spot graded. Work must be shown.

$$R = 0.08206 \text{ liter atm K}^{-1} \text{ mole}^{-1} = 8.314 \text{ J K}^{-1} \text{ mole}^{-1}$$

1. Calculate the work of expansion of an ideal gas from 1L to 4 L under the following conditions (a and b):
 - (a) The gas expands against a constant $P_{\text{ext}} = 1\text{atm}$ (ie., you suddenly remove blocks holding the piston); the initial temperature is 25°C .
 - (b) The expansion is done reversibly, at a constant temperature of 25°C . The final pressure is 1 atm.
 - (c) Does (a) or (b) do more work?
 - (d) Show how you convert your answers to parts (a) and (b) from L-atm to Joules.
2. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 6
3. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 7
4. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 8
5. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 10
6. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 16
7. Tinoco, Sauer, and Wang, 3rd Ed. - Chapter 2, Problem 4