

Homework 2, due Oct. 5, 2006

1.

(a) Calculate the work, in J, that is produced when 100g of liquid water vaporizes into steam at 100°C against a pressure of one atmosphere (which is the same as the vapor pressure of steam at 100°C). The densities of water and steam at this pressure and temperature are $0.958\text{g}/\text{cm}^3$ and $0.598\text{kg}/\text{m}^3$, respectively.

(b) What energy change is involved in the process? The latent heat of vaporation is $2257\text{J}/\text{g}$.

2. Problem 3.10 in book, but **modify the problem** so that the final pressure is instead 100 atm. Show work. (The answer for problem 3.10 is in the back of the book.)

3. Problem 4.1b in book. **Do part b only**. Answer is in back, so show work.

4. Problem 4.11 in book, but **modify the problem** so that the final pressure is instead 16 atm. Show work.

5. Problem 5.3d in book. **Do part d only**. Answers is in back, so show work.