

Physics 3180 (Thermal Physics)
spring 2012

Problem Set 2

(due Wednesday, January 18, 4:00 pm)

1. Problem 1.36, page 26.
2. Problem 1.38, page 26.
3. Problem 1.42, page 31.
4. Use the Molecular Dynamics Applet to “measure” the heat capacity of this system under the following conditions: (a) a nearly ideal gas; (b) a solid crystal. To do so, you’ll need to measure the temperatures at two slightly different energies (in each case). Be sure to record all your settings and measurements. Compare both of your results with the predictions of the equipartition theorem, thinking carefully about how many degrees of freedom the system has.
5. Problem 1.45, page 31.
6. Problem 1.47, page 33.
7. Problem 1.50, page 35.
8. Problem 2.1, page 51.
9. Problem 2.5, parts a, b, and c, page 55.