Homework 14 (Due Thursday, March 22nd)

For this homework assignment read Section 7.4 of Pathria and Beale, which presents a more complete treatment of phonons than what I presented in lecture. Note that they consider the more general case where the density of states, $g(\omega)$, depends on the properties of the solid's lattice; in lecture I only discussed the Debye approximation (see eqn. (7.4.15).

1. Solve problem 7.25 in Pathria and Beale. You may find it helpful to review the results in Section 3.8.

2. Using the result derived in problem 7.25, solve problem 7.26 in Pathria and Beale.