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Physics 404   **HOMEWORK ASSIGNMENT #4**   **Spring 2012**

Due date: Thursday, Sept. 27   **Deadline:** Tuesday, Oct. 2

S means a problem in Schroeder's text. The number in parentheses is the number of points.

1. (5) S 3.1 Explicit calculation of Cv using Table 3.1. Use the center-difference approximation: take a difference of the values just above and just below the point where you seek the derivative.

2.(15) S 3.24 Consideration of the Einstein model with Excel. Warning: when doing the case N=5000, you will probably not be able to go beyond q=160 or so. This will not hinder you in finding the low-temperature behavior of the heat capacity, which is the goal of this problem.

3.(15) S 3.25 (except f) Analytic consideration of the Einstein model.

4.(15) S 3.34 (except g) Use of 2-state model to understand the negative linear expansion coefficient of rubber.