

Phys 404
Spring 2011
Homework 3, CHAPTER 2
Due Thursday, February 17, 2010 @ 12:30 PM

Read Chapter 2 of Kittel and Kroemer (K+K).

Be explicit, giving formulas and any approximations used in all problems. Solutions with only a numerical answer will receive no credit.

1. K+K, Chapter 2, Problem 1. In part (b), what is the significance of the second derivative being negative?
2. K+K, Chapter 2, Problem 2. A paramagnetic material obeys the Curie-Weiss law, which means that the magnetic susceptibility $\chi = M/B \sim 1/\tau$. This problem is the starting point for understanding the concept of negative temperature (see Appendix E of K+K).
3. K+K, Chapter 2, Problem 3
4. K+K, Chapter 2, Problem 4
5. K+K, Chapter 2, Problem 5(a) only.
6. K+K, Chapter 2, Problem 6

