Physics 214A Statistical Physics Winter 2009 due 9:30 am Tuesday, March 10

PROBLEM SET 8

Final Exam: The final exam will take place on Thursday March 19 from 8:30 am to 10:30 am 114 MSTB. The final will cover chapters 1 to 7, chapters 9 and 10, and section 8.5. You are also responsible for all the material covered in lecture (see lecture notes on web). A formula sheet will be provided.

Reading: Chapters 9 and 10 in Reif. You may skip section 9.12

Problems:

- 1. Reif 9.13
- 2. Reif 9.20, part a only
- 3. Reif 9.21
- 4. Reif 10.1
- 5. Reif 10.2
- 6. Reif 10.9
- 7. Consider a two dimensional spinless (S = 0) ideal Bose gas in two dimensions with periodic boundary conditions (so it is on a toroidal surface. The gas occupies an area A and has N particles, each with mass m. Can this system undergo Bose-Einstein condensation? If so, find the transition temperature T_C . If not, show explicitly why not.