

Thermodynamics & Statistical Mechanics PSet 10

1. **Book Problems:** 7.14, 7.18, 7.20, 7.21, 7.22, 7.23, 7.33
2. **Extra Credit – Anyons:** (You probably need to know something about QM to try to do this.) In 2 dimensions, fermions and bosons are just a particular limit of a more general kind of particle, the ‘anyon’. When two bosons change places, the state (wavefunction) does not change, whereas when two fermions change places, the wavefunction picks up an extra minus sign. When two anyons exchange places, the wavefunction picks up a more general phase $e^{i\phi}$, where ϕ is a property of the anyons. Would you expect that anyons behave like bosons, should they obey Pauli exclusion... or do you expect that obey some more exotic rule? Explain.
3. **Book Problem Extra Credit:** 7.24, 7.25, 7.27a&d, 7.28