Phys 448 HW 12 Due Dec 9

1) BD 11.2
2) BD 11.4
3) BD 11.6 This is quite similar to the approach I used in class, but different in the details.
4) BD 11.7
5) Use the operator method (either from class, or 11.6) to deduce the 5s wavefunction for hydrogen.
6) Alkali atoms consist of a nucleus of charge Z, surrounded by $Z-1$ tightly bound "core" electrons and one "valence" electron. At large r, the potential energy is the same as for hydrogen and therefore the Hamiltonian is the same. The energy of the 5s electron of Rb is -4.18 eV. Plot the 5s radial wavefunction for Rb.