3. Modify eigen basis.cpp so that you can print out (to a file) the approximate wave 1 function corresponding to a given state (e.g., the ground state or the first excited state).

Plot the exact ground state wave function and the approximate wave function (as a function of r) for one of the potentials (your choice; I like the Coulomb best!) with two choices for b (your choice!), each for basis sizes of 1, 5, 10, and 20.

Comment on the nature of the convergence and speculate about choosing b based on your plots. Make sure that the wave functions are normalized.

**The graphs of the ground state have a similar pattern, which is that the graph starts climbing to a peak after the 2nd/3rd points on average in each basis size and then it decides where it reaches 0.**

**I chose b = 25 and b = 30 because it helps display a “good enough” graph that shows a correct wavefunction with a convergence.**