1. Consider the double delta-function potential

$$V(x) = -\frac{\hbar^2}{ma}\left(\delta(x + a/2) + \delta(x - a/2)\right),$$

where a is a positive constant with units of length.

a) Find the expressions which determine the energy and (unnormalized) wavefunctions of the lowest-energy bound state. Calculate the energy if a=1nm.

b) Use a suitable approximation to numerically calculate the energy and wavefunction corresponding to the potential above with MATLAB/Octave for a=1nm. Directly compare the calculated electron density and energy to your analytical result.

ALSO: Griffiths 2nd ed, problems 2.24, 2.25, and 2.39