

Each week you should review both your answers and the answer key for the previous week's homework to make sure that you understand all the questions and how to answer them.

1. Your first homework question is to submit one homework correction. Select one problem for which you had the wrong answer. On a fresh sheet of paper, 1) identify the question number you are correcting, 2) state (copy) your original wrong answer, 3) explain where your original reasoning was incorrect, the correct reasoning for the problem, and how it leads to the right answer. If you got all the answers correct, then state which was your favorite / most useful homework problem and why.

2. Solve the 1D Schrödinger Equation for the infinite square well of width L .

This is the example we have spent significant time in class on. You should set up the problem by sketching and defining the potential $U(x)$. After plugging the potential into the time-independent Schrödinger equation, find the general solution and then apply the boundary conditions to find the specific wave function $\psi(x)$ for this case. Find the particular values for k and A in terms of the well width L .

All the steps should be clearly explained. Skip a line and write a heading (General Solution) for the sections where you find the general solution, where you apply the boundary conditions, and where you normalize the wave function.

From the textbook (Harris) Chapter 5:

Problems 55, 57, and 78 – 83 & 86.

Note that I am NOT assigning problem 85, but you need the answer to #85 for #86. Just use the answer to #85 from the back of the book.

Problems 78-83 & 86 are all part of one large problem. They will be worth 15 points all together rather than 5 points each, which is my usual value for individual problems.

You do not need to have them all on separate sheets of paper, since they are not really separate problems.

Please use at least one sheet of paper for each problem. (That is, don't put more than one problem on a given page.) Feel free to use the clean back side of old print-outs. Remember to include phrases explaining your work. All work must be clear and easy for me to understand in order to receive full credit.