Computational Physics HW3

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1 EX1

Did not compile.

2 EX3

I have spent many hours (10+) on this homework and have decided to skip this one for now. I will come back to it once I complete assignment 4.

3 EX6

I modified the RECTBARRIER example code for use as a function that outputs the coefficients. Then I plotted the probability distribution. Something went wrong for the graph is blank.

4 EX7

Following the rectangular barrier example in Ch3 I wrote out each continuity equation in matrix form. Using RECTBARRIER as a guide I solved for each variable. The output is as follows:

k = 0.1
v = 0.3

Complex Coefficients
(0.00102299,-0.174681)
(1.05743,0.0623297)
(-0.088213,-0.0678378)
(1.24185,0.0602178)
(-0.271167,-0.0658299)
(1.05724,0.0274923)
(-0.0880042,-0.0331916)
(0.96352,-0.00642674)

Reflection Coefficient: 0.0305145
Transmission Coefficient: 0.928412

5 EX8

Once again the graphs are blank. I did not have time to fix this issue.

6 EX9

Similarly to EX3 I will come back to this question after I complete assignment 4 ITP.

7 EX14

I modified my function from EX8 to output the real and imaginary parts of $\Psi(x,t)$. Once again I could not get the plots to show up.