University of Tehran
Department of Electrical and Computer Engineering
## Modern Physics – Dr. Mohammad Abdolahad
Spring 2023
Assignment 2: Numerical Solution of the Schrodinger Equation
Due Date: 2023.05.27

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1. Using the method you proposed in assignment 1, numerically solve the Schrödinger equation for a particle in a box with a width of 1 Å. In this exercise, the form of the potential box will have three cases as shown in the figure below. Plot the obtained wave function for the first and twenty-fifth energy levels in a single figure. Also, plot the energy diagram as a function of the wave number for the first 100 energy levels, both numerically and analytically, and compare the results. Analyze the outcome.
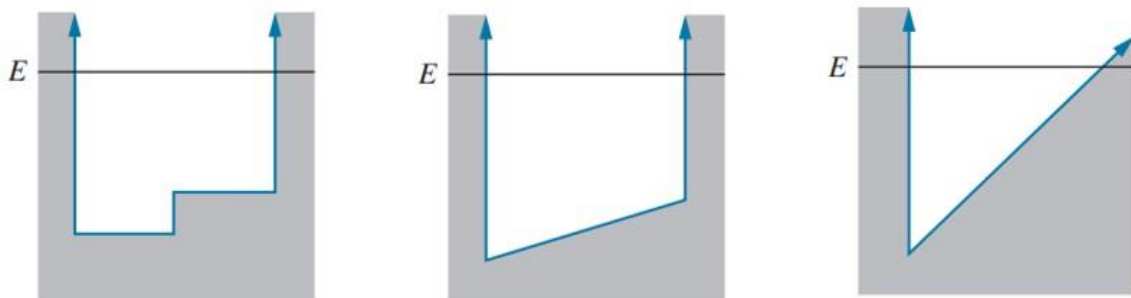
Please upload the explanations and the required outputs in a PDF file, along with the code used in MATLAB in txt format, compressed in a file, to the system.