PH3205-Computational Physics
Spring 2022

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Additional Task - 5

Problem Write a program to plot the four unequal widths well potential separated with equal infinite well potential.

Solution: We solve the problem in Matlab. The required Matlab code is in the file *AdditionalTask5.m*

We first define the potential

```matlab
%% Parameters for setting up the well in the interval -L < x < L.
L = 5;                    % Interval Length.
N = 1000;                 % No of points.
x = linspace(-L, L, N).';% Coordinate vector.
dx = x(2) - x(1);        % Coordinate step.
a = L/30;
b = L/50;
%% Setting up the well
U = -200*(heaviside(x+3*a+1.5*b)-heaviside(x+2*a+1.5*b)+ ...
    heaviside(x+2*a+0.5*b)-heaviside(x+0.5*b)+heaviside(x-0.5*b) ...
    -heaviside(x-0.5*a-0.5*b)+heaviside(x-1.5*b-0.5*a)-heaviside(x-1.5*b-3.5*a));
```

Then we plot the potential.