Each MATLAB script file when run outputs the exact solution and approximated solution in 1 plot. The File name indicates the k value and which part (ie boundary condition) it solves for. The exact and approximate solution are coincident for all k values.

The code starts by defining parameters such as K and L, then it creates the coefficient and f matrix in which the first and last row are adjusted based on the boundary conditions. After this the tri diagonal algorithm starts.

In the zip file a script file named “tridiagonal\_alg\_test.m” was created during debugging to test the algorithm. Two function files named “Part1\_exact.m” and “Part2\_exact.m” are functions outputting the exact solution for a given x and k. These functions are used to plot the exact solution line in the script files that plot the approximate and exact solution in one plot. The remaining files named “hw4\_partXkY.m” ,where X is which part 1 or 2 and Y is the k value, are the script files that approximate the function and output the approximate solution and exact solution using the created function in one plot.