

Chance's Homework 2

Problem 1

Issues: Had problems running `root_scalar` function of `scipy.optimize`, so I changed it to `root` function instead and added it accordingly.

For the cubic perturbation, the energy levels are lower than without a perturbation. For the eigenfunctions of the cubic perturbation, the spacing between values (lines) of the eigenfunctions for different energy levels is greater than without a perturbation.

For the quartic perturbation, the energy levels are higher than without a perturbation. For the eigenfunctions of the quartic perturbation, the spacing between values (lines) of the eigenfunctions for different energy levels is less than without a perturbation.

Problem 2

For part a, changed the variables accordingly and hit run.

For part b, compared to expected exact solution. Got amplitudes to match for this specific case.