My git repository for 599 is

https://github.com/upv5bbb/ME599.git
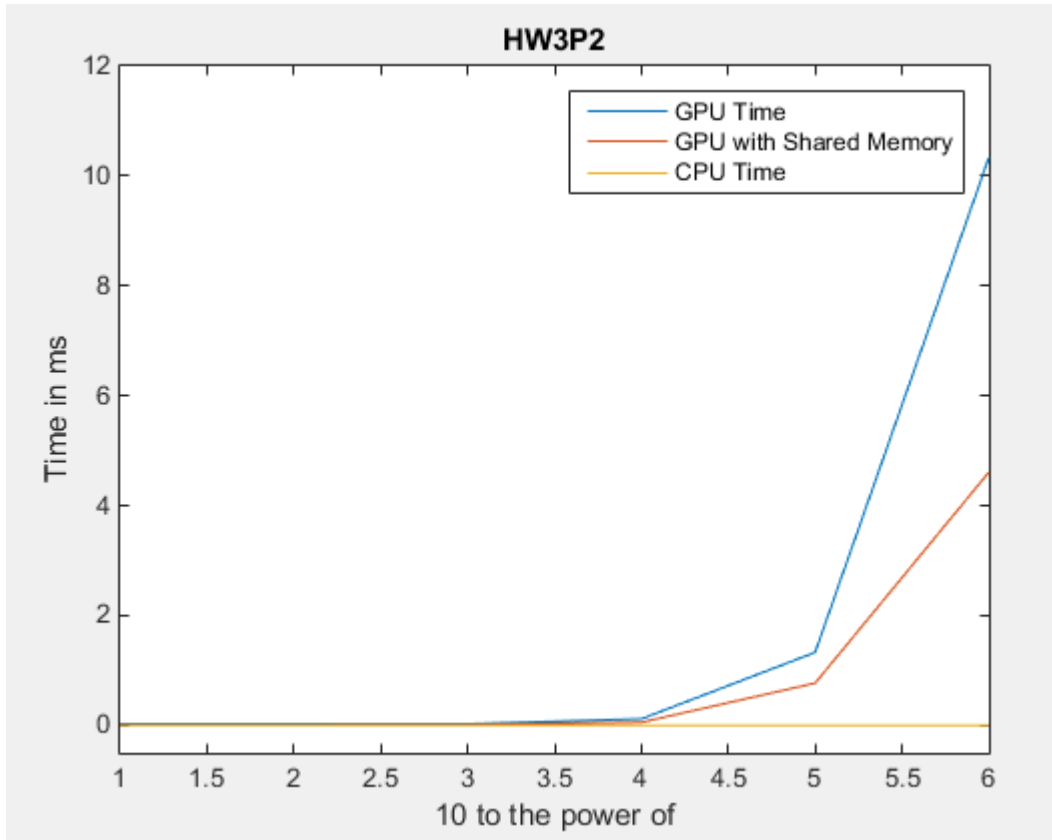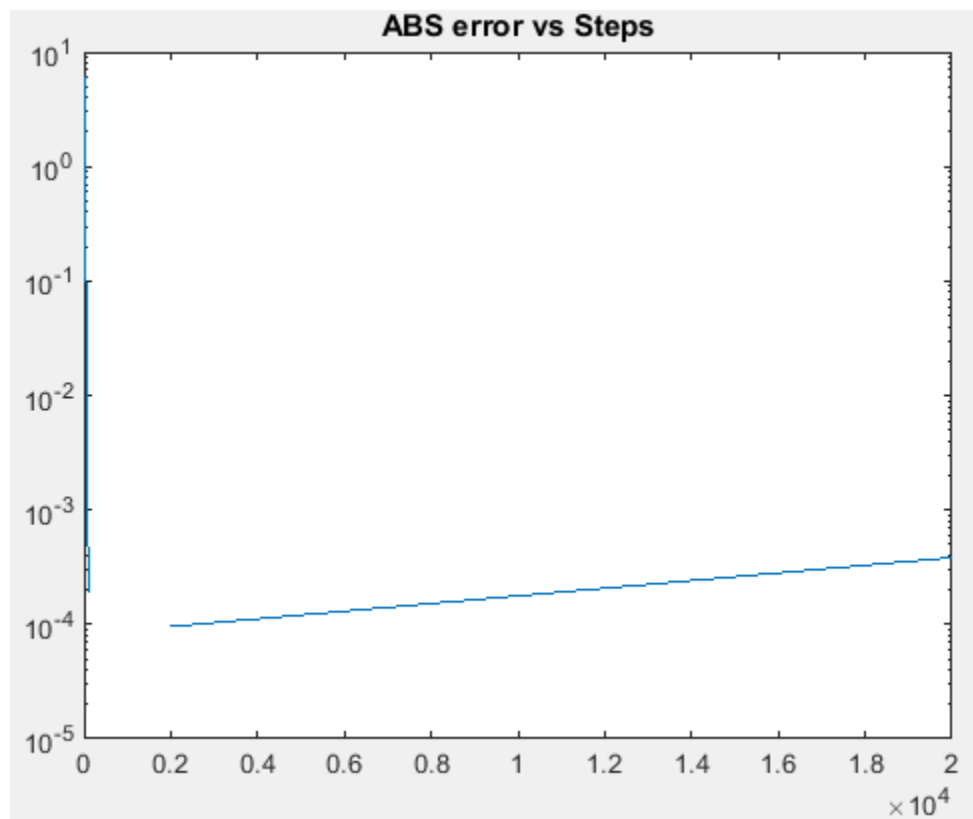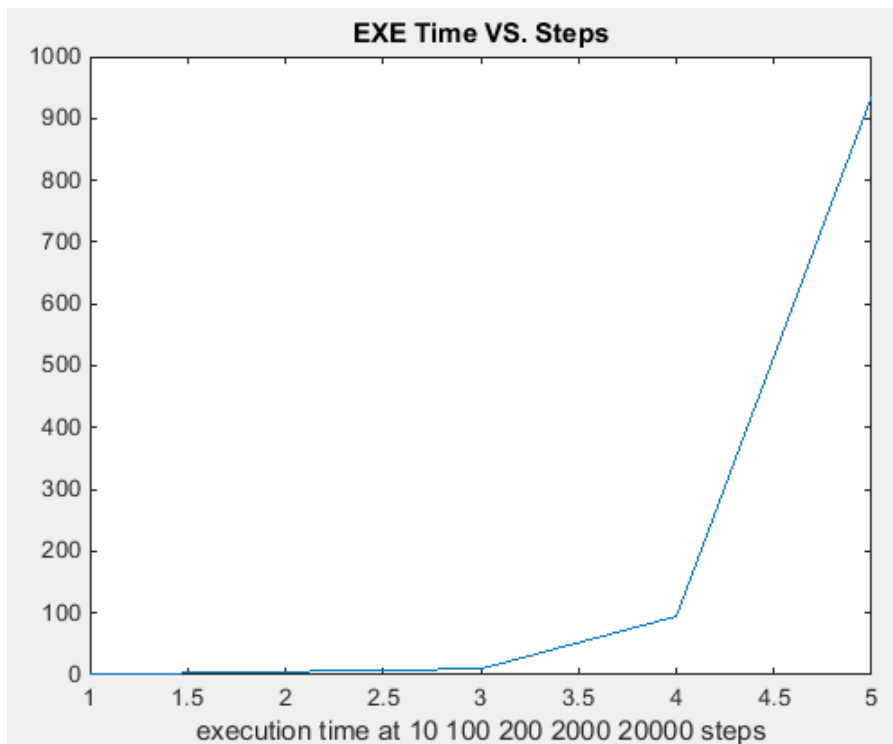

2.

Since this calculation is rather simple, CPU handles the calculation faster.
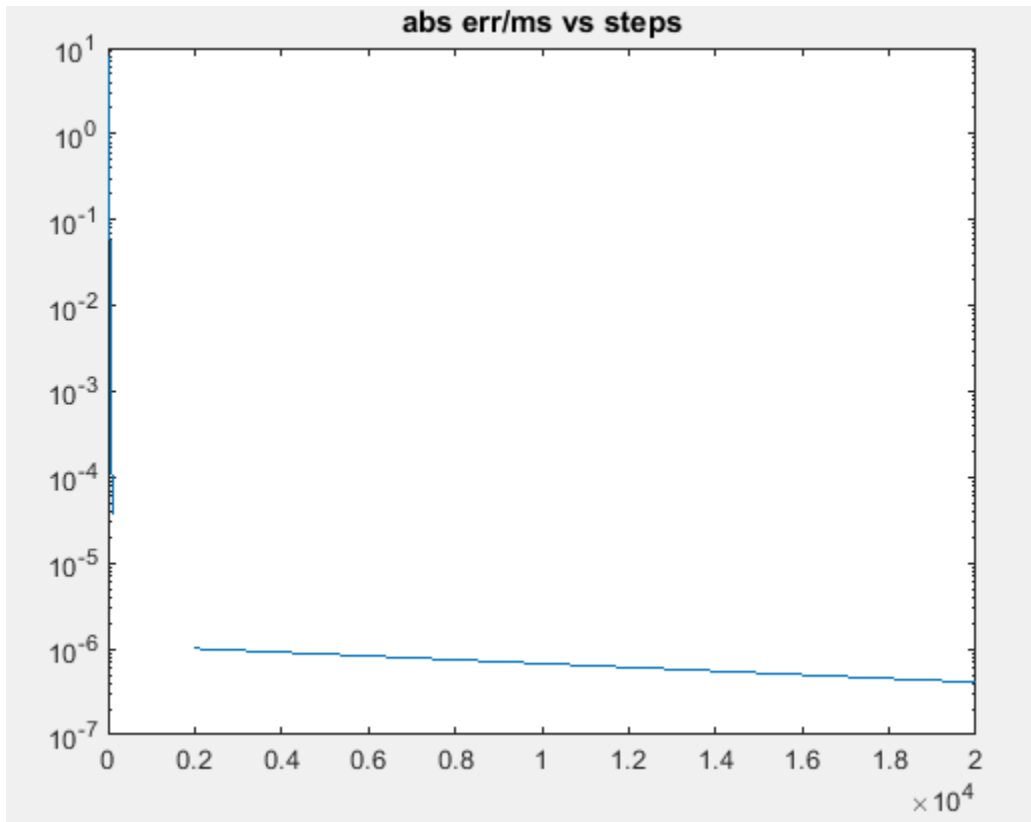
3.d

Requested plots are attached below. The execution time increases as steps taken increases since the requested calculation increases.

The error percentage gain per step increase after reaching 0.0001 % error.

The error percentage gain per step per time decreases.

EXE Time VS. Steps

execution time at 10 100 200 2000 20000 steps

ABS error vs Steps

abs err/ms vs steps

3.e After at least 9 steps, RK4 reached desired error rate. The calculation time was 0.798304 ms.

After at least 468 steps, euler reached desired error rate. The calculation time was 5.606720 ms.

4.a the points corresponds to the roots. Since the function is continuous when the test point is close to the root, the iterated results has little travel from the original point, therefore the points close to their start points correspond to the roots of the function.