

Pyung Lee

Homework 6

HW6\_text solutions

Q4) Central first was used because the error propagation is  $O(h^2)$ .

Q6) For this problem, I used trapezoidal rule,  $1/3$ , and  $3/8$  in that order. Out of the three methods I tried to maximize the use of  $3/8$  because it holds the less error. But because of the intervals I could only use  $3/8^{\text{th}}$  once. I used trapezoidal rule first because the first interval was from 0-4. Then I used  $1/3^{\text{th}}$  because the next three points had a step size of 2. Then I used  $3/8^{\text{th}}$  because the next four step sizes were 4.

Q7) Out of simpsons  $1/3$ , trapezoidal, quad the method that took the least number of calls was simpsons  $1/3$ . This used a total of 19 function calls as opposed to the others which were 225 and 29.