import numpy as np

import math

mas\_x = [1.5, 2, 2.5, 3, 3.5, 4, 4.5]

mas\_y = [10.517, 10.193, 9.807, 9.387, 8.977, 8.637, 8.442]

h = mas\_x[1] - mas\_x[0]

def y(mas\_y,j):

mas=[]

for i in range(len(mas\_y)):

mas.append(mas\_y[i] - mas\_y[i-1])

mas.pop(0)

if j == 1:

return mas

else:

j-=1

return y(mas,j)

yx1=1/h\*((y(mas\_y, 1)[1]) - (y(mas\_y, 2)[1])/2+(y(mas\_y, 3)[1])/3-(y(mas\_y, 4)[1]/4)

yx2=1/h\*\*2\*((y(mas\_y, 2)[1]) - (y(mas\_y, 3)[1])+11/12\*(y(mas\_y, 4)[1]))

print ('first derivative = ', yx1, '\n')

print ('second derivative = ',yx2) 