import math

import numpy as np

x= [2.4,2.6,2.8,3.0,3.2,3.4]

y= [3.526,3.782,3.945,4.043,4.104,4.155]

h = x[1] - x[0]

def dy(y,j):

m1 = []

for i in range(len(y)):

m1.append(y[i] - y[i-1])

m1.pop(0)

if j == 1:

return m1

else:

j-=1

return dy(m1,j)

#m2 = []

#m2 = dy(y,1)

#print(m2)

#return m1

#print(dy(y,j))

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

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

print(' df(x) = ', yx1)

print(' df2(x) = ', yx2)