import numpy as np

import math

masX = [2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0]

masY = [3.526, 3.782, 3.945, 4.043, 4.104, 4.155, 4.222, 4.331, 4.507]

h = masX[1] - masX[0]

Mas = []

Mas1 = []

Mas2 = []

Mas3 = []

for i in range(len(masX)):

Mas.append(masY[i] - masY[i - 1])

Mas.pop(0)

for e in range(len(Mas)):

Mas1.append(Mas[e] - Mas[e - 1])

Mas1.pop(0)

for u in range(len(Mas1)):

Mas2.append(Mas1[u] - Mas1[u - 1])

Mas2.pop(0)

for o in range(len(Mas2)):

Mas3.append(Mas2[o] - Mas2[o - 1])

Mas3.pop(0)

y1 = 1 / h \* (Mas[1] - (Mas1[1] / 2) + (Mas2[1] / 3) - (Mas3[1] / 4))

y2 = 1 / h\*\*2 \* (Mas1[1] - Mas2[1] + (11 / 12 \* Mas3[1]))

print('First derivative = ', y1)

print('Second derivative = ', y2)