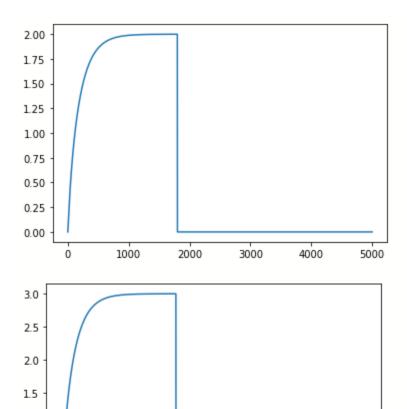
```
HW 6
import tensorflow as tf
import numpy as np
import matplotlib.pyplot as plt
import math
def dzdx(x,y):
 return (x-2)/(25 - (x-2)**2 - (y-3)**2)**0.5
def dzdy(x,y):
 return (y-3)/(25 - (x-2)**2 - (y-3)**2)**0.5
xStart=0.00001
yStart=0.00001
maxLimit = 5000
xStartHistory = np.zeros(maxLimit)
yStartHistory = np.zeros(maxLimit)
learning rate = 0.01
x update = 0
y update = 0
gamma = 0.6
for i in range(maxLimit):
 xStartHistory[i] = xStart
 yStartHistory[i] = yStart
 x_update = (gamma * x_update) + (learning_rate * dzdx(xStart, yStart))
 xStart = xStart - x update
 y_update = (gamma * y_update) + (learning_rate * dzdy(xStart, yStart))
 yStart = yStart - y update
 if xStartHistory[i] - xStartHistory[i-1] < 0.000001:</pre>
   print(i)
   break
#rerun the last if statement with yStartHistory[i] instead of
xStartHistory[i] to find when function converges with respect to y
Converges with respect to x: 1799 (2275 less epochs than last week)
Converges with respect to y: 1880 (2397 less epochs than last week)
```



3000

4000

5000

2000

1.0

0.5

0.0

Ó

1000