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Lab Assignment 1

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```
#1
import numpy as np
import math as m
import matplotlib.pyplot as plt
l = 250
h = 300
l = 10
M = np.zeros((l-1,h-1))
for x in range(1,l,1):
    for y in range(1,h,1):
        r1 = m.sqrt(x*2 + y*2)
        r2 = m.sqrt((l-x)*2 + y*2)
        r3 = m.sqrt((l-x)*2 + (h-y)*2)
        r4 = m.sqrt(x*2 + (h-y)*2)
        a1 = x*y
        a2 = (l-x)*y
        a3 = (l-x)*(h-y)
        a4 = x*(h-y)
        M[x-1][y-1]=(l/(4*m.pi))*((r1/a1)+(r2/a2)+(r3/a3)+(r4/a4))
plt.figure(figsize=(10, 10))

feature_x = np.arange(1, l, 1)
feature_y = np.arange(1, h, 1)

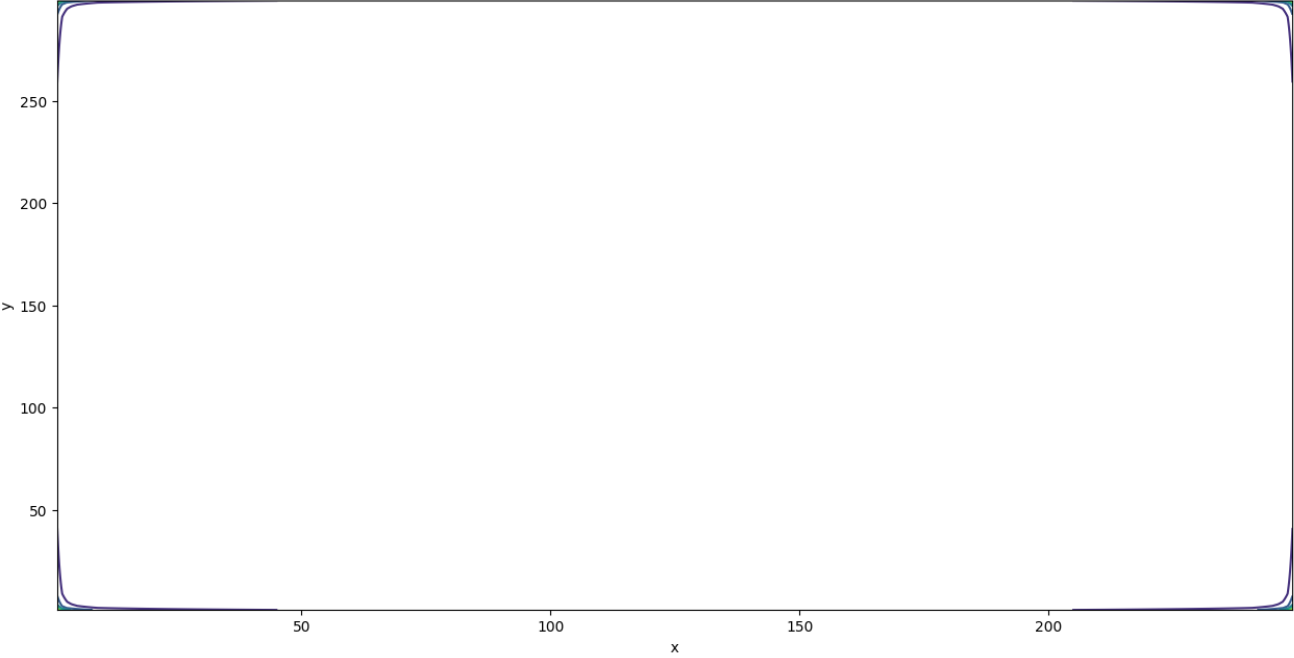
[X, Y] = np.meshgrid(feature_x, feature_y)

ax = plt.contour(X, Y, M.T)

plt.title('Contour Plot')
plt.xlabel('x')
plt.ylabel('y')

plt.show()
```

Contour Plot



```
plt.figure(figsize=(10, 10))

feature_x = np.arange(1, l, 1)
feature_y = np.arange(1, h, 1)

[X, Y] = np.meshgrid(feature_x, feature_y)

ax = plt.axes(projection='3d')
ax.contour3D(X, Y, M.T, 100)

plt.title('Contour Plot')
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```

