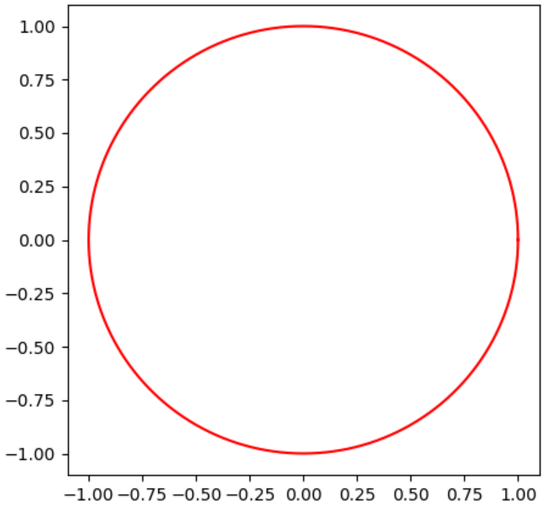
Program:

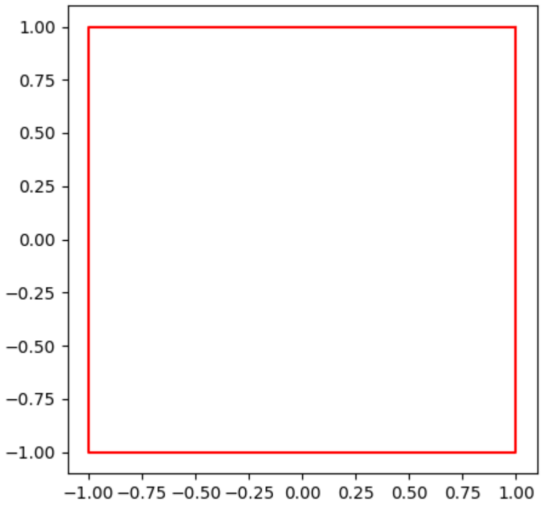
```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import random
plt.figure(figsize=(5,5))

circleX=[]
circleY=[]
for i in range(361):
    circleX.append(np.cos(np.pi*i/180))
    circleY.append(np.sin(np.pi*i/180))

plt.plot(circleX, circleY,color='r')
plt.show()

import numpy as np
import matplotlib.pyplot as plt
from numpy.random import random
plt.figure(figsize=(5,5))
squareX=[1,-1,-1,1,1]
squareY=[1,1,-1,-1,1]
plt.plot(squareX,squareY,color='r')
plt.show()

circleX=[]
circleY=[]
for i in range(361):
    circleX.append(np.cos(np.pi*i/180))
    circleY.append(np.sin(np.pi*i/180))

plt.plot(circleX, circleY,squareX,squareY,color='r')
plt.show()
```

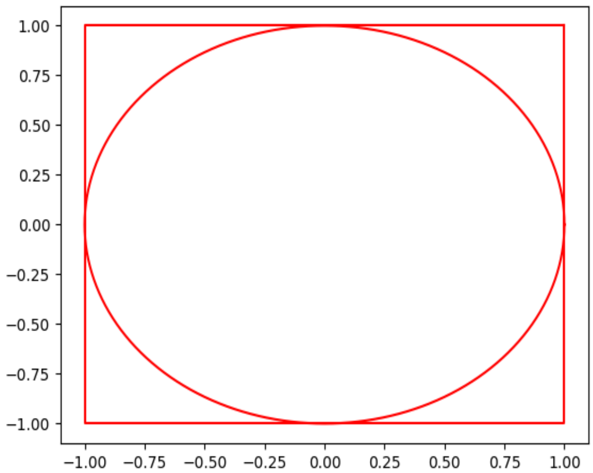
```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import random
insideX,insideY,outsideX,outsideY = [],[],[],[]
insideCount = 0
maxItr = 1000
for i in range(maxItr):
    x = 2*(random()-0.5)
    y = 2*(random()-0.5)
    r = np.sqrt(x**2+y**2)
    if r <= 1:
        insideCount +=1
        insideX.append(x)
        insideY.append(y)
    else:
        outsideX.append(x)
        outsideY.append(y)
piValue = 4*insideCount / maxItr
print(piValue)
plt.figure(figsize=(5, 5))
plt.scatter(insideX,insideY,color='g',marker=".",s=5)
plt.scatter(outsideX,outsideY,color='b',marker=".",s=5)
plt.plot(squareX,squareY,color='y')
plt.plot(circleX,circleY,color='r')
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```

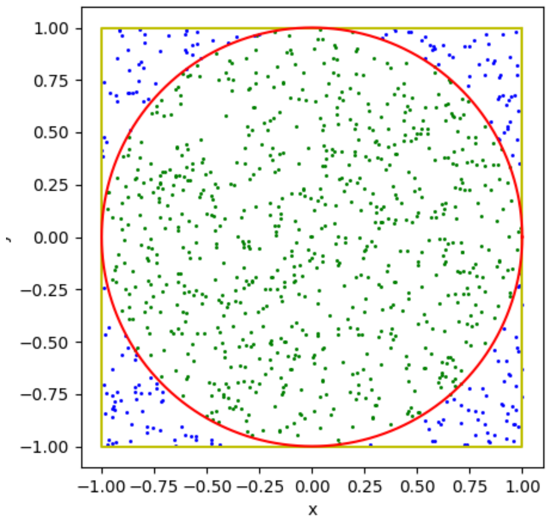
Output:

3.16


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
−1.00 −0.75 −0.50 −0.25 0.00 0.25 0.50 0.75 1.00


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
−1.00 −0.75 −0.50 −0.25 0.00 0.25 0.50 0.75 1.00


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
−1.00 −0.75 −0.50 −0.25 0.00 0.25 0.50 0.75 1.00


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
−1.00 −0.75 −0.50 −0.25 0.00 0.25 0.50 0.75 1.00
x