

```
1 import random
2
3 def monte_carlo():
4     # instantiate variables
5     num_circ = 0
6     num_square = 0
7     NUM_ITERATIONS = 1000
8
9     for i in range(NUM_ITERATIONS**2):
10        # randomly generated x and y values from a uniform distribution (unit
        circle is between -1 to 1)
11        x = random.uniform(-1, 1)
12        y = random.uniform(-1, 1)
13
14        # distance between (x, y) and the origin
15        d = (x**2) + (y**2)
16
17        # check if (x, y) lies inside teh cricle
18        if d <= 1:
19            num_circ += 1
20            num_square += 1
21
22        # estimate the value of pi by multiplying 4 by ratio of number of points
        inside circle to total number of points (number of points inside square)
23        return 4 * num_circ / num_square
24
25
26 pi = monte_carlo()
27 print(pi)
```