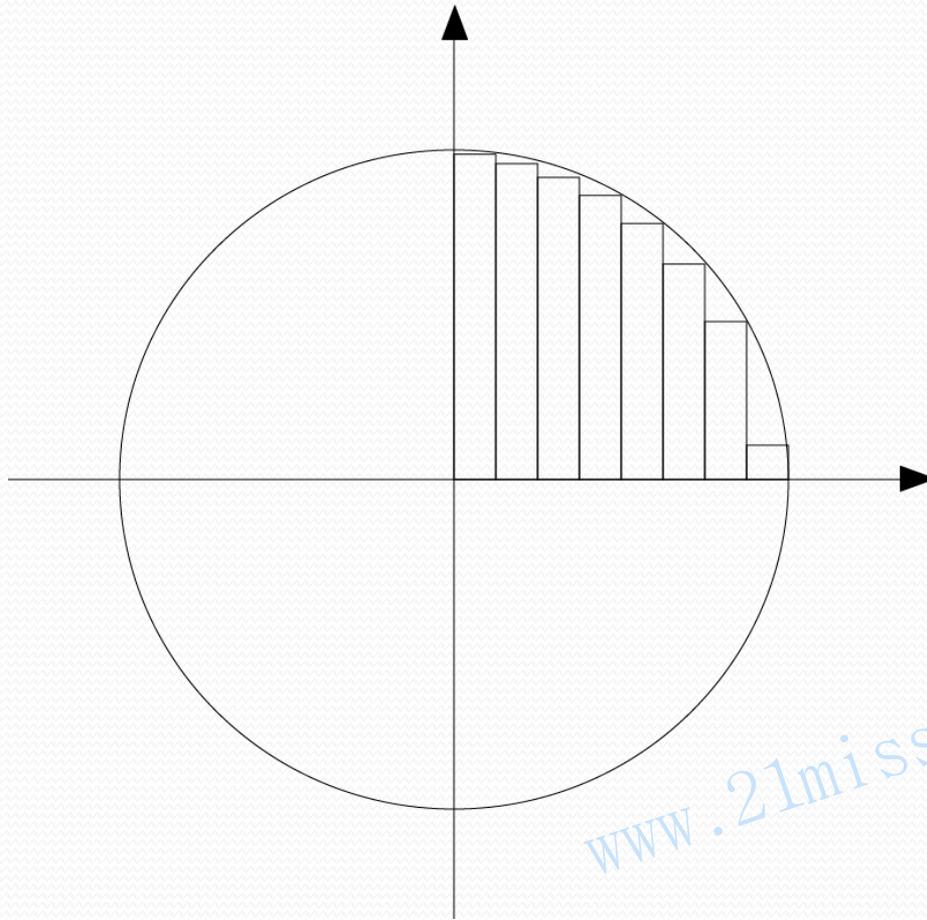


少儿编程

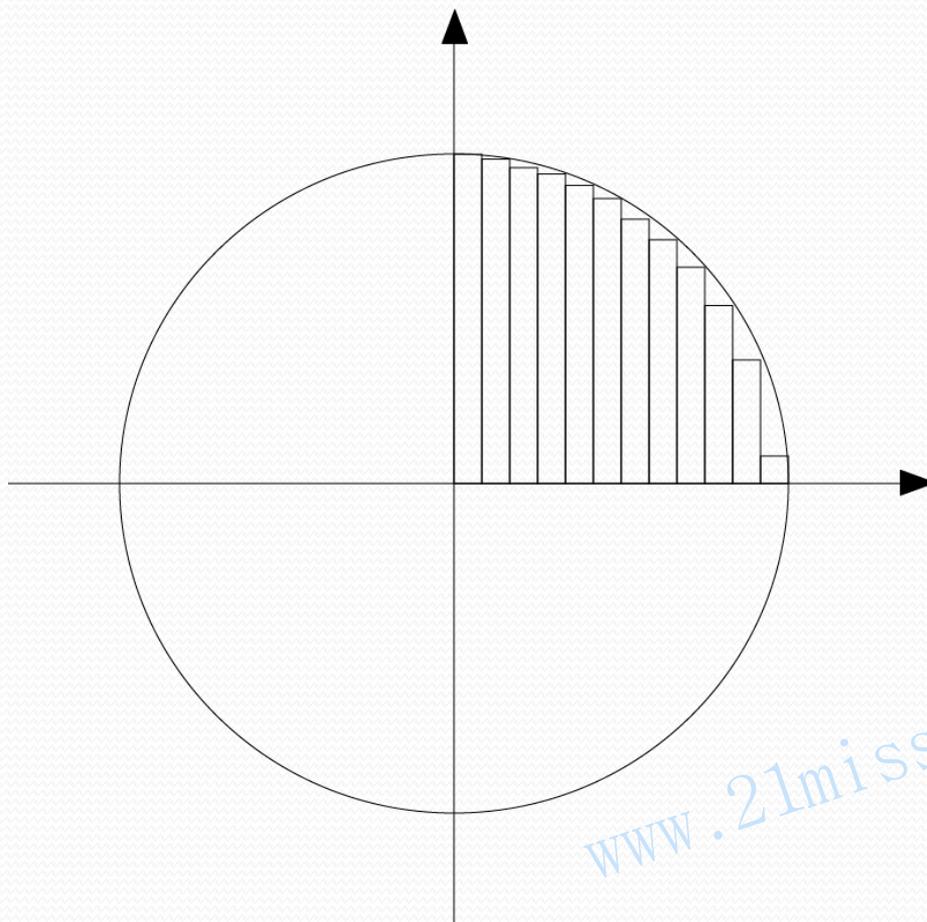
21工作室出品

- 如果没有圆周率、不知道面积公式，为我们如何求一个图形的面积？

将圆的一部分分成8份

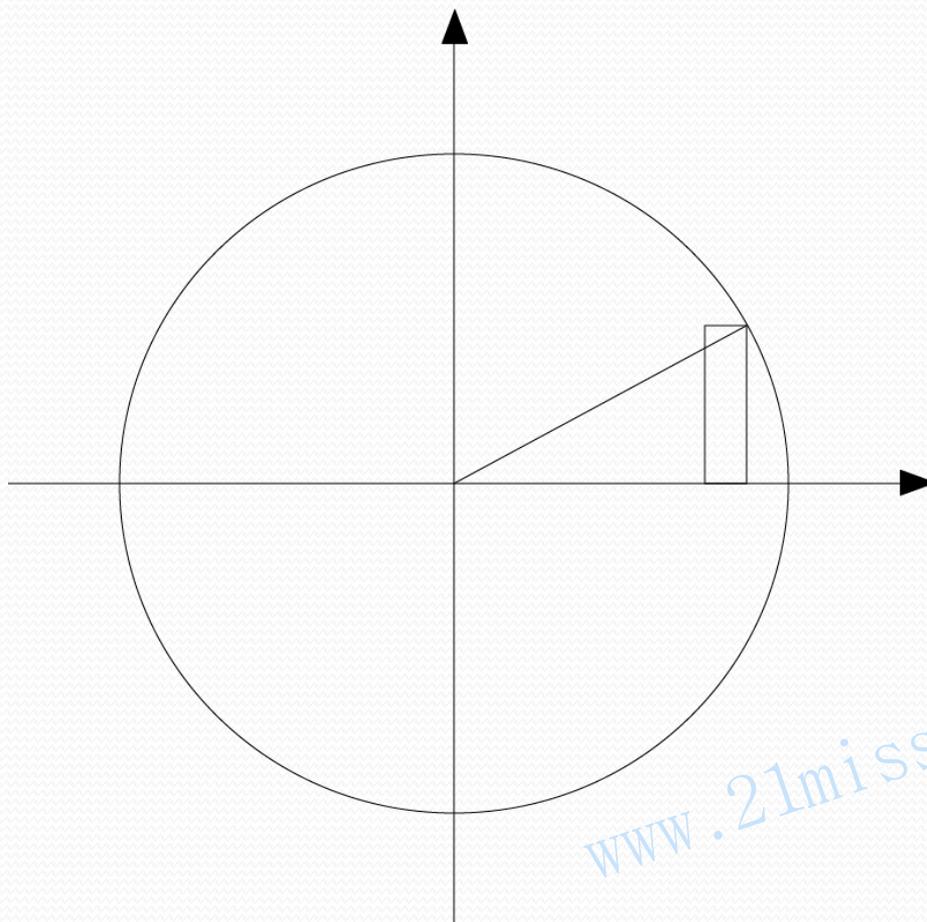


将圆的一部分分成12份



- 分得越细，越接近铺满整个圆

用矩形来铺满圆角

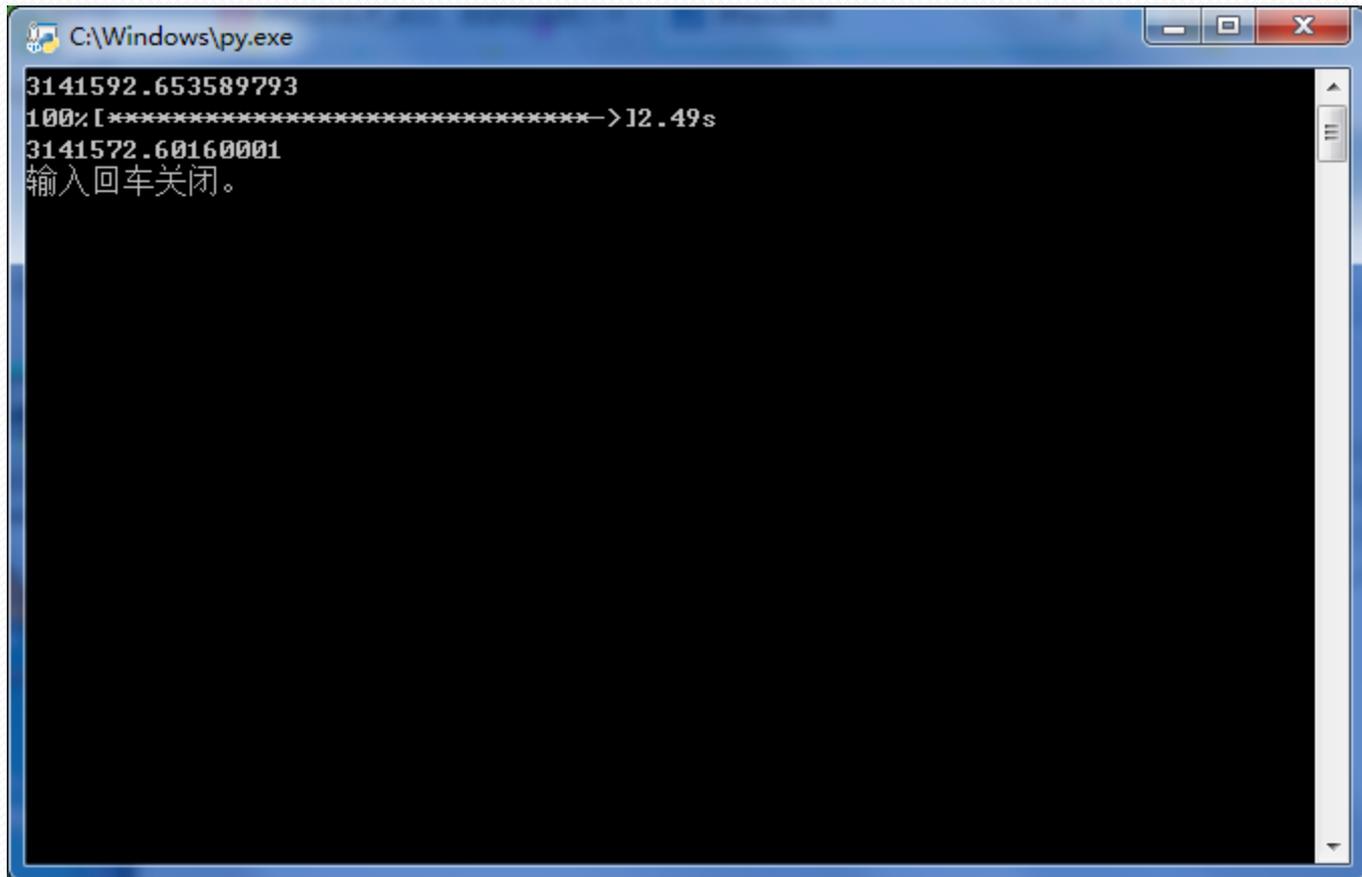


```

1 import math
2 import time
3
4 r = 1000
5 ls_height = []
6
7
8 def circle_area(r, side_number):
9     area = 0
10    start = time.perf_counter()
11    for i in range(side_number):
12        bottom = r / side_number
13        height = math.sqrt(r ** 2 - (bottom * (i + 1)) ** 2)
14        height = round(height, 2) # 保留小数点后两位
15        ls_height.append(height)
16        area += bottom * height
17
18        # 打印进度条1
19        number = 30
20        past = i // (side_number//number)
21        left = 30 - past
22        a = "*" * past
23        b = "." * left
24        c = (i / side_number) * 100
25        dur = time.perf_counter() - start
26        print("\r{: ^3.0f}%[{}->{}]{:.2f}s".format(c, a, b, dur), end="")
27        # time.sleep(0.1)
28    print() # 打印进度条2
29    return area * 4
30
31
32 if __name__ == "__main__":
33     print(math.pi * r ** 2)
34     # print(circle_area(r, 8))
35     # print(circle_area(r, 12))
36     print(circle_area(r, 10**6))
37     # print(ls_height)

```

- 面积 = $\pi r^2 = \pi \times 1000^2$



A screenshot of a Windows command prompt window. The title bar shows the file path "C:\Windows\py.exe". The window contains the following text:

```
3141592.653589793  
100% [*****->12.49s  
3141572.60160001  
输入回车关闭。
```