7618 Do not pour out

You have got a cylindrical cup. Its bottom diameter is 2 units and its height is 2 units as well.

The height of liquid level in the cup is d ($0 \leq d \leq 2$). When you incline the cup to the maximal angle such that the liquid inside has not been poured out, what is the area of the surface of the liquid?

Input

The first line is the number of test cases. For each test case, a line contains a float-point number d.

Output

For each test case, output a line containing the area of the surface rounded to 5 decimal places.

Sample Input

```
4
0
1
2
0.424413182
```

Sample Output

```
0.00000
4.44288
3.14159
3.51241
```