UVa Online Judge

10286 Trouble with a Pentagon

You are asked to place the largest possible square inside a regular pentagon (whose internal angles are same and all the sides are same in length). You are given the information that one vertex of the square will be coincident with a vertex of the square as shown in the figure below. You will have to find the length of a side of the square when a side of the regular pentagon is given.

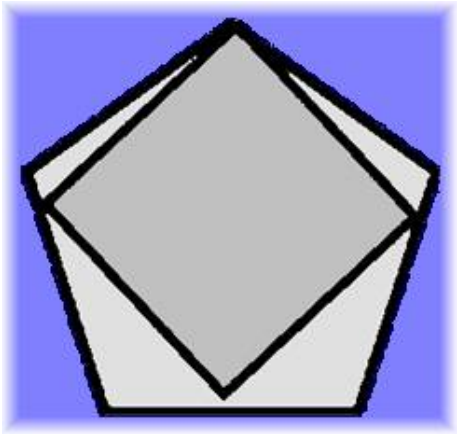

Fig: Square in a pentagon.

Input

The input file contains several lines of input. Each line contains a floating point number F ($0 \leq F \leq 100000$) which indicates the length of a side of the pentagon. Input is terminated by end of file.

Output

For each line of input produce one line of output containing a floating point number with ten digits after the decimal point. This number indicates the largest possible side of a square that fits in the pentagon. This output will be judged with a special correction program, so dont worry about small precision errors.

Sample Input

```
0.0000001
0.0000002
0.0000003
```

Sample Output

```
0.0000001067
0.0000002135
0.0000003202
```