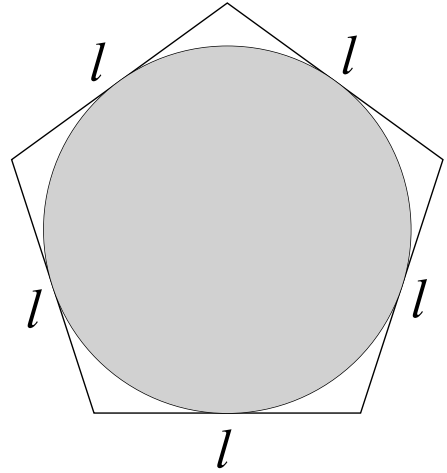
As part of an engineering project you're busy with, you need some perfectly round metal disks. Unfortunately the only pieces of metal available to you are regular polygons (i.e. all sides are equal in length and all angles are equal). You need to determine the largest circle you can cut out of each regular polygon, assuming a zero-width cutter.



Input

The input consists of an arbitrary number of records, but no more than 30.

Each line of input consists of two integers, n and l where n is the number of sides the polygon has, ($3 \leq n \leq 50$), and l is the length of the sides of the polygon, ($1 \leq l \leq 1\,000$).

The end of input is indicated by a line containing only the value '`-1`'.

Output

For each record, output the diameter of the largest circle that will fit within the regular polygon, output as a decimal number with 3 decimal places.

Sample Input

```
3 5
8 15
-1
```

Sample Output

```
2.887
36.213
```