Problem E
Expanding Rods

Problem ID: expandingrods
CPU Time limit: 1 second
Memory limit: 1024 MB

Source: Waterloo/Alberta Programming Contest 2004-C
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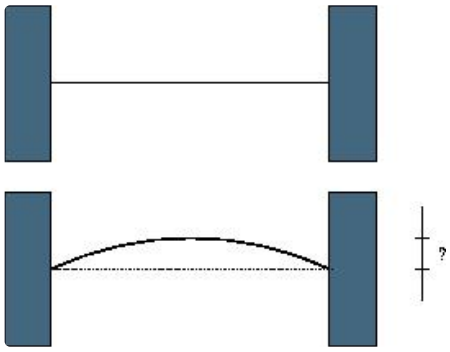
When a thin rod of length L is heated n degrees, it expands to a new length $L' = (1 + n \cdot C) \cdot L$, where C is the coefficient of heat expansion.

When a thin rod is mounted on two solid walls and then heated, it expands and takes the shape of a circular segment, the original rod being the chord of the segment.



Your task is to compute the distance by which the center of the rod is displaced.

Input

The input contains at most 20 lines. Each line of input contains three non-negative numbers:

- an integer L, the initial lenth of the rod in millimeters ($1 \leq L \leq 10^9$),
- an integer n, the temperature change in degrees ($0 \leq n \leq 10^5$),
- a real number C, the coefficient of heat expansion of the material ($0 \leq C \leq 100$, at most 5 digits after the decimal point).

The input is such that the displacement of the center of any rod is at most one half of the original rod length. The last line of input contains three -1's and it should not be processed.

Output

For each line of input, output one line with the displacement of the center of the rod in millimeters with an absolute error of at most 10^{-3} or a relative error of at most 10^{-9}.

Sample Input 1

```
1000 100 0.0001
15000 10 0.00006
10 0 0.001
-1 -1 -1
```

Sample Output 1

```
61.328991534
225.020248568
0.000000000
```