L. Two Squares

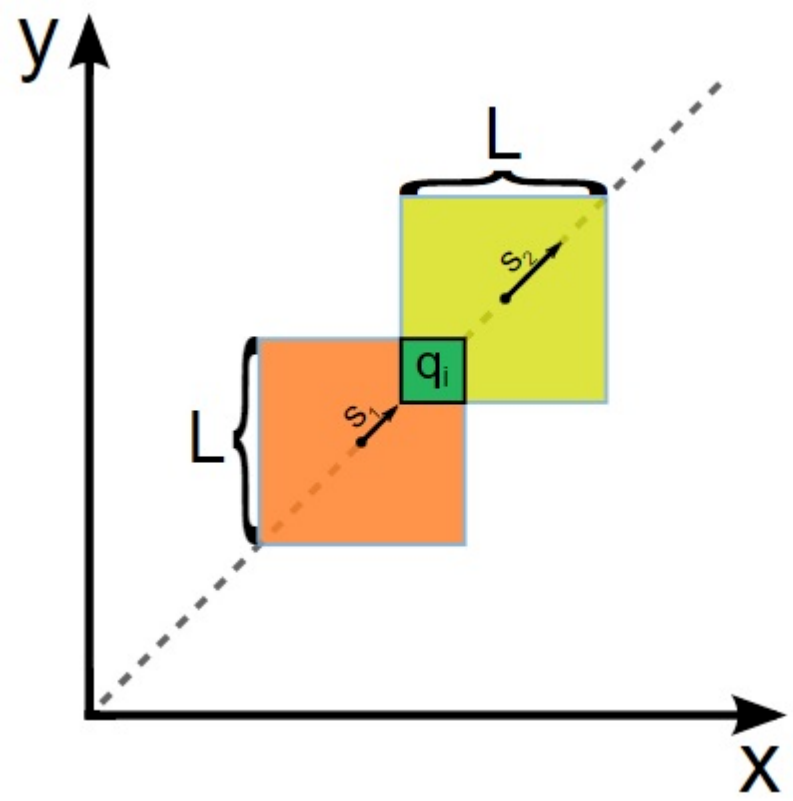
time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Moamen has 2 squares, initially both of whose sides have length L placed in a plane.

the bottom left corner of each square is (0,0).

the first square is moving velocity S_1 diagonally (X+1,Y+1) and the second square is moving velocity S_2 diagonally,where(S_1!=S_2).

For each query of form q_i, Sherlock has to report the time at which the overlapping area of tiles is equal to q_i.



Input
The first line contains 3 integers (1 $\leq$ L ,S_1,S_2 $\leq 10^9$).

Next line contains Q (1 $\leq$ Q $\leq 10^5$), the number of queries. Each of the next lines consists of one integer q_i in one line (1 $\leq q_i \leq L^2$,).

Output
For each query, print the required answer in one line.

Your answer will be considered correct if it's absolute or relative error does not exceed 10^{-6}.

Example

input Copy

```
10 1 2
2
50
100
```

output Copy

```
4.142136
0.000000
```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- Sheet #1 (Data type - Conditions)

Sheet #10 (General Hard)

Finished

Practice

→ About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the link.