B. Multiplication Table

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Sasha grew up and went to first grade. To celebrate this event her mother bought her a multiplication table M with n rows and n columns such that $M_{ij} = a_i \cdot a_j$ where $a_1, \ldots, a_n$ is some sequence of positive integers.

Of course, the girl decided to take it to school with her. But while she was having lunch, hooligan Grisha erased numbers on the main diagonal and threw away the array $a_1, \ldots, a_n$. Help Sasha restore the array!

Input

The first line contains a single integer n ($3 \leqslant n \leqslant 10^3$), the size of the table.

The next n lines contain n integers each. The j-th number of the i-th line contains the number M_{ij} ($1 \leq M_{ij} \leq 10^9$). The table has zeroes on the main diagonal, that is, $M_{ii} = 0$.

Output

In a single line print n integers, the original array $a_1, \ldots, a_n$ ($1 \leq a_i \leq 10^9$). It is guaranteed that an answer exists. If there are multiple answers, print any.

Examples

input Copy

```
5
0 4 6 2 4
4 0 6 2 4
6 6 0 3 6
2 2 3 0 2
4 4 6 2 0
```

output Copy

```
2 2 3 1 2
```

input Copy

```
3
0 99990000 99970002
99990000 0 99980000
99970002 99980000 0
```

output Copy

```
9999 10000 9998
```

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