Square root

Enter a number after the square root of that number.

Input

The first line of the input consist of a single integer number t which determines the number of tests.

In each of next t lines there is a single number n.

Constraints

- $0 < t \leq 1\,000$
- $0 \leq n \leq 1\,000\,000$

Output

For each number n print out the square root of n.

Separate your answers with a new line character.

Example

Input:
```
7
4
7
0
2
-9
1
-3
```

Output:
```
2
2.645751
0
1.414214
invalid
1
invalid
```