

Square Free Factorization

You all know about factorization of an integer. Here we want you to factor a number into as few factors as possible. That is easy, you say, just have the number itself, and that will be the smallest number of factors i.e. 1.

But wait, I haven't finished -- each of the factors that you find must be square-free. A square-free number, however you factor it, won't have any factor that is a perfect square. Of course, you can never include 1 as a factor.

Input

The first line of input is the number of test cases T. The next T lines each have an integer N.

Output

For each testcase, output the smallest number of square-free factors.

Constraints

$$T \leq 10^4$$

$$2 \leq N \leq 10^6$$

Example

SAMPLE INPUT

```
2
6
8
```

SAMPLE OUTPUT

```
1
3
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