

5110 Square-Free Numbers

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:

- $T \leq 10^4$
- $2 \leq N \leq 10^6$

Explanation:

6 can be factored as just 6 (further factorable as 2×3 only, and hence square free), a single factor.
8 has to be factored as $2 \times 2 \times 2$ so that all factors are square-free.

Sample Input

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2
6
8
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Sample Output

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1
3
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