

Largest prime factor

The task is to print the largest prime factor of an integer.

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 integer number n .

Constraints

- $0 < t \leq 1000$
- $1 < n \leq 1\,000\,000\,000$

Output

Print the largest prime factor of n

Example

Input:

3
10
11
12

Output:

5
11
3