A Hard Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Given a positive integer n, you need to find out the minimum integer k such that for any subset T of the set $\{1, 2, \cdots, n\}$ of size k, there exist two different integers $u, v \in T$ that u is a factor of v.

Input

The first line contains an integer T ($1 \leq T \leq 10^5$) indicating the number of test cases.

Each of the following T lines contains an integer n ($2 \leq n \leq 10^9$) describing a test case.

Output

For each test case, output a line containing an integer which indicates the answer.

Example

standard input	standard output
4 2 3 4 5	2 3 3 4