# Problem M. Math, Nero and Seneca

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 2 seconds |
| Memory limit: | 1024 megabytes |

Ancient Roman philosopher Seneca was the tutor of the future emperor Nero. Nero once asked him how great a number may be. Seneca answered that there are numbers so large that even the wisest citizens of Rome cannot imagine them; for example, numbers that can be created by multiplying usual Roman numbers greater than 1. To avoid the possible ambiguity, Nero decided that only the integers that have a unique representation in this form are counted.

Now a modern artist decided to create an installation dedicated to Nero and Seneca and wants to use some positive integers not exceeding $10^{18}$ in it. But he wants to be sure that they can be uniquely represented as a product of one or several numbers greater than 1 in Roman numeral representation (more formally, the representations are counted as one representation if they are identical as the multisets, so the representations $4 \cdot 2$ and $2 \cdot 4$ are the same representation).

Any positive integer strictly less than 4000, and only them, has a unique representation in Roman numerals; other rules for writing Roman numerals are well known to all participants, so they will not be provided here for brevity.

## Input

The first line of the input contains one integer $t$ ($1 \le t \le 2 \cdot 10^5$) — the number of the testcases.

Each of the following $t$ lines describes one testcase and contains one integer $n$ ($2 \le n \le 10^{18}$) that needs to be checked.

## Output

For each request, print 1 on a separate line if the number can be uniquely represented as a product of Roman numerals greater than 1, and 0 otherwise.

## Example

| standard input | standard output |
|---|---|
| 4<br>2024<br>2025<br>2026<br>2027 | 0<br>0<br>0<br>1 |