

# Gopu and function

Once Gopu was reading a maths problem which had a weird looking function  $f$  as follows.

$$f(n) = \begin{cases} 1, & \text{if } n \text{ is a prime number.} \\ f(\text{sum of prime divisors of } n) + \text{number of distinct prime divisors of } n, & \text{otherwise.} \end{cases}$$

Compute  $f(n)$  for a given value of  $n$ .

## Input

First line contains  $T$  : number of test cases. ( $1 \leq T \leq 20$ )

For each test case, there is a single line containing integer  $n$ . ( $2 \leq n \leq 10^{12}$ ).

## Output

For each test case, output value of  $f(n)$  in a single line.

## Example

**Input:**

```
6
2
3
4
5
20
123456
```

**Output:**

```
1
1
2
1
3
6
```