A. Candies

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Recently Vova found n candy wrappers. He remembers that he bought x candies during the first day, $2x$ candies during the second day, $4x$ candies during the third day, $\dots$, $2^{k-1}x$ candies during the k-th day. But there is an issue: Vova remembers neither x nor k but he is sure that x and k are positive integers and $k > 1$.

Vova will be satisfied if you tell him **any positive** integer x so there is an integer $k > 1$ that $x + 2x + 4x + \dots + 2^{k-1}x = n$. It is guaranteed that at least one solution exists. **Note that $k > 1$**.

You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \le t \le 10^4$) — the number of test cases. Then t test cases follow.

The only line of the test case contains one integer n ($3 \le n \le 10^9$) — the number of candy wrappers Vova found. It is guaranteed that there is some positive integer x and integer $k > 1$ that $x + 2x + 4x + \dots + 2^{k-1}x = n$.

Output

Print one integer — **any positive** integer value of x so there is an integer $k > 1$ that $x + 2x + 4x + \dots + 2^{k-1}x = n$.

Example

input

```
7
3
6
7
21
28
999999999
999999984
```

output

```
1
2
1
7
4
333333333
333333328
```

Note

In the first test case of the example, one of the possible answers is $x = 1, k = 2$. Then $1 \cdot 1 + 2 \cdot 1$ equals $n = 3$.

In the second test case of the example, one of the possible answers is $x = 2, k = 2$. Then $1 \cdot 2 + 2 \cdot 2$ equals $n = 6$.

In the third test case of the example, one of the possible answers is $x = 1, k = 3$. Then $1 \cdot 1 + 2 \cdot 1 + 4 \cdot 1$ equals $n = 7$.

In the fourth test case of the example, one of the possible answers is $x = 7, k = 2$. Then $1 \cdot 7 + 2 \cdot 7$ equals $n = 21$.

In the fifth test case of the example, one of the possible answers is $x = 4, k = 3$. Then $1 \cdot 4 + 2 \cdot 4 + 4 \cdot 4$ equals $n = 28$.