

## F. Meaningless Operations

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Can the greatest common divisor and bitwise operations have anything in common? It is time to answer this question.

Suppose you are given a positive integer  $a$ . You want to choose some integer  $b$  from 1 to  $a - 1$  inclusive in such a way that the [greatest common divisor \(GCD\)](#) of integers  $a \oplus b$  and  $a \& b$  is as large as possible. In other words, you'd like to compute the following function:

$$f(a) = \max_{0 < b < a} \gcd(a \oplus b, a \& b).$$

Here  $\oplus$  denotes the [bitwise XOR operation](#), and  $\&$  denotes the [bitwise AND operation](#).

The greatest common divisor of two integers  $x$  and  $y$  is the largest integer  $g$  such that both  $x$  and  $y$  are divided by  $g$  without remainder.

You are given  $q$  integers  $a_1, a_2, \dots, a_q$ . For each of these integers compute the largest possible value of the greatest common divisor (when  $b$  is chosen optimally).

### Input

The first line contains an integer  $q$  ( $1 \leq q \leq 10^3$ ) — the number of integers you need to compute the answer for.

After that  $q$  integers are given, one per line:  $a_1, a_2, \dots, a_q$  ( $2 \leq a_i \leq 2^{25} - 1$ ) — the integers you need to compute the answer for.

### Output

For each integer, print the answer in the same order as the integers are given in input.

### Example

input	Copy
3	
2	
3	
5	
output	Copy
3	
1	
7	

### Note

For the first integer the optimal choice is  $b = 1$ , then  $a \oplus b = 3$ ,  $a \& b = 0$ , and the greatest common divisor of 3 and 0 is 3.

For the second integer one optimal choice is  $b = 2$ , then  $a \oplus b = 1$ ,  $a \& b = 2$ , and the greatest common divisor of 1 and 2 is 1.

For the third integer the optimal choice is  $b = 2$ , then  $a \oplus b = 7$ ,  $a \& b = 0$ , and the greatest common divisor of 7 and 0 is 7.

### Topic Stream Mashup: Number Theory

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