

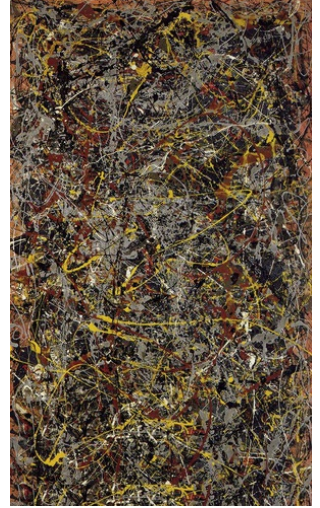
TLE '16 Contest 7 P4 - Abstract Problem

You see an abstract problem on Codeforces.

Given an integer x you want to change 0 into that number using a minimal number of the following operations:

- Add 1
- Subtract 1
- Multiply by 2

You think it is too easy, so you increase x to X $\forall (1 \leq X$



*Abstract art, like
abstract problems, is
very enjoyable.*

Input Specification

The first line of input will contain T .

The next T lines of input will each contain X .

Output Specification

For each X , output on separate lines the minimal number of operations necessary to change 0 into X .

Sample Input

```
2
32
15
```

Sample Output

```
6
6
```