

One of the most popular topic of Data Structures is Rooted Binary Tree. If you are given some nodes you can definitely able to make the maximum number of trees with them. But if you are given the maximum number of trees built upon a few nodes, Can you find out how many nodes built those trees?

Input

The input file will contain one or more test cases.

Each test case consists of an integer n ($n \leq 4,294,967,295$). Here n is the maximum number of trees.

Output

For each test case, print one line containing the actual number of nodes.

Sample Input

```
5
14
42
```

Sample Output

```
3
4
5
```