

Next power of 2

[Wersja polska](#)

[English version](#)

For given integer **n** print next power of 2 greater than **n**.

Input

The first line of the standard input contains one integer **t** ($t < 10001$) which is the number of test cases.

In each of the next **t** lines there is an integer **n** ($0 \leq n \leq 10^9$).

Output

For each test, print the next power of 2 greater than **n**.

Example

Input:

5
5
4
10
16
100

Output:

8
8
16
32
128