Problem

Given an array A of size N, you could choose some non-negative number X and change every element of the given array to $A_i = A_i \oplus X$

Here, $\oplus$ denotes the bitwise XOR operation.

Print the number of total possible values of X for which bitwise OR of every element of the array would be minimum.

Input format

- The first line contains T denoting the number of test cases.
- The first line of each test case contains integers N, denoting the size of the array A.
- The next line contains N integers.

Output format

Print the number of total possible values of X for which bitwise OR of every element of the array would be minimum.

Constraints

$1 \leq T \leq 5000$
$1 \leq N \leq 10^5$
$0 \leq A_i \leq 10^9$

The sum of N over all test cases does not exceed $2 \cdot 10^5$

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Sample Input	Sample Output
1 2 1 4	4

Time Limit: 1

Memory Limit: 256

Source Limit: