Problem A. AND-OR closure

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Given a set A of n non-negative integers, we define its **AND-OR closure** as the B with smallest size such that:

- $A \subseteq B$
- If $x, y \in B$, then $(x \texttt{ AND } y) \in B$
- If $x, y \in B$, then $(x \texttt{ OR } y) \in B$

Find the size of the AND-OR closure of A.

Here `AND` denotes the bitwise AND operation, and `OR` denotes the bitwise OR operation.

Input

The first line of the input contains a single integer n ($1 \le n \le 2 \cdot 10^5$) — the size of the set A.

The second line contains n distinct integers $a_1, a_2, \ldots, a_n$ ($0 \le a_i < 2^{40}$) — which represent the elements of A.

Output

Print the size of the AND-OR closure of A.

Examples

standard input	standard output
4 0 1 3 5	5
5 0 1 2 3 4	8

Note

In the first sample, the AND-OR closure of A is $\{0, 1, 3, 5, 7\}$.

In the second sample, the AND-OR closure of A is $\{0, 1, 2, 3, 4, 5, 6, 7\}$.