Problem K. Birthday Puzzle

Time limit	1000 ms
Mem limit	262144 kB
OS	Windows

Today is the Birthday of a beautiful girl, she's happy and she's telling her friends loudly to bring her birthday gifts. One of her best friends who is fond of puzzles decided to bring her a very special gift, a magic box, this box cannot be opened unless the beautiful girl solves the mysterious puzzle written on the box and writes the answer on a small piece of paper under where the puzzle is written.

"You are given an array a, the answer is obtained by doing OR operation to the numbers in each subset of array a, then by summing all the subset ORing results". Help the beautiful girl to find the answer so she can open the magic box and continue celebrating her blessed birthday.

Input

The first line contains integer $n(1 \le n \le 20)$, the size for array a The second line contains n integers, $a_i(1 \le a_i \le 10^5)$ the array a elements

Output

Help the beautiful girl to find the answer for the puzzle.

Sample 1

Input	Output
3 1 2 3	18

Note

Note: a subset of an array a is another array that can be obtained by removing zero or more elements from a.

The first sample subsets:

1

2

3

1|2 = 3

1|3 = 3

2|3 = 3

1|2|3 = 3

Answer = 1+2+3+3+3+3+3 = 18

Where | is the OR operation.

For more information about the OR operation use this link:
https://en.wikipedia.org/wiki/Bitwise_operation#OR