B. quot;Or" Game

Time limit: 2s Memory limit: 256 MB

You are given n numbers $a_1, a_2, ..., a_n$. You can perform at most k operations. For each operation you can multiply one of the numbers by x. We want to make $a_1 \mid a_2 \mid \ldots \mid a_n$ as large as possible, where $\mid$ denotes the bitwise OR.

Find the maximum possible value of $a_1 \mid a_2 \mid \ldots \mid a_n$ after performing at most k operations optimally.

Input

The first line contains three integers n, k and x ($1 \le n \le 200\,000$, $1 \le k \le 10$, $2 \le x \le 8$).

The second line contains n integers $a_1, a_2, ..., a_n$ ($0 \le a_i \le 10^9$).

Output

Output the maximum value of a bitwise OR of sequence elements after performing operations.

Examples

input
3 1 2 1 1 1
output
3

input
4 2 3 1 2 4 8
output
79

Note

For the first sample, any possible choice of doing one operation will result the same three numbers 1, 1, 2 so the result is $1 \mid 1 \mid 2 = 3$.

For the second sample if we multiply 8 by 3 two times we'll get 72. In this case the numbers will become 1, 2, 4, 72 so the OR value will be 79 and is the largest possible result.