

# AND Rounds

You are given a cyclic array  $A$  having  $N$  numbers. In an AND round, each element of the array  $A$  is replaced by the bitwise AND of itself, the previous element, and the next element in the array. All operations take place simultaneously. Can you calculate  $A$  after  $K$  such AND rounds ?

## Input

The first line contains the number of test cases  $T$  ( $T \leq 50$ ).

There follow  $2T$  lines, 2 per test case. The first line contains two space separated integers  $N$  ( $3 \leq N \leq 20000$ ) and  $K$  ( $1 \leq K \leq 1000000000$ ). The next line contains  $N$  space separated integers  $A_i$  ( $0 \leq A_i \leq 1000000000$ ), which are the initial values of the elements in array  $A$ .

## Output

Output  $T$  lines, one per test case. For each test case, output a space separated list of  $N$  integers, specifying the contents of array  $A$  after  $K$  AND rounds.

## Example

### Sample Input:

```
2
3 1
1 2 3
5 100
1 11 111 1111 11111
```

### Sample Output:

```
0 0 0
1 1 1 1 1
```