

# Magic Bitwise AND Operation

Given  $n$  integers, your task is to pick  $k$  out of them so that the picked number are minimum when do bitwise AND among all of them.

## Input

There are multiple test cases for this problem. The first line of the input contains an integer denoting the number of test cases.

For each test case, there are two integers in the first line:  $n$  and  $k$ , denoting the number of given integers and the number of integers you are asked to pick out. ( $1 \leq n \leq 40$ ,  $1 \leq k \leq n$ )

The second line contains the  $n$  integers. You may assume that all integers are smaller than  $2^{60}$ .

*Note: There are about one thousand randomly generated test cases. Fortunately 90% of them are relatively small.*

## Output

For each test case, output only one integer - the smallest possible value.

## Example

### Input:

```
2
3 2
5 6 7
8 2
238 153 223 247 111 252 253 247
```

### Output:

```
Case #1: 4
Case #2: 9
```