7493 The Minions Quiz

The minions have finally found their new master. This time, he is a Math professor and he is trying very hard to teach them math. He has been teaching them bitwise operators for over a year! They learnt about AND(&) and OR (|) operators and it is time for a quiz to test them.

The quiz is very simple, they will be given a number A of AND(&) operators, a number B of OR (|) operators and $(A + B + 1)$ integers. They have to find the maximum number that can be obtained by inserting the '&' and '|' operators between the given nonnegative integers without changing their order.

Finally, there is a special requirement for this quiz, they are required to evaluate the operators from left to right.

Input

The first line of the input will be a single integer T, the number of test cases ($1 \leq T \leq 100$), followed by T test cases.

Each test case will consist of 2 lines. The first line will contain 2 integers A and B ($0 \leq A, B \leq 10,000$) representing the number of AND(&) and OR (|) operators, respectively. The second line of input will consist of $(A + B + 1)$ 64-bit nonnegative integers separated by single spaces.

Output

For each test case, output a single line containing the maximum number that can be obtained by inserting the operators between the given integers.

Sample Input

```
2
1 1
1 4 5
2 2
2 3 11 4 5
```

Sample Output

```
5
7
```