

Problem E. The Minions Quiz

Program: quiz.(cpp|java)
Input: quiz.in
Balloon Color: Black

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.

Examples

quiz.in	standard output
2	5
1 1	7
1 4 5	
2 2	
2 3 11 4 5	