Game of Primes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Alice and Bob always like playing games with each other and today they found a new game about primes.

There are two positive integers x and y in the game, and Alice and Bob move in turn. At each turn, the current player can choose one integer and subtract it by 1 (making (x, y) to $(x-1, y)$ or to $(x, y-1)$). The game ends when one of following conditions is met and the winner is specified at the same time:

- When x or y equals to K: Bob wins.
- When x and y are both primes: Alice wins.
- When both of the previous conditions are satisfied at the same time: Bob wins.

Now x, y, K and who moves first are given, can you determine who will finally win the game if they both play optimally?

Input

The first line of input contains an integer T, representing the number of test cases. Then following T lines and each line contains one test case.

For each test case, there are four integers x, y, K and w separated by exactly one space. x,y,K are mentioned above. $w = 0$ when Alice moves first and $w = 1$ when Bob moves first.

Output

For each test case, you should output **Case x: name** in one line, where x indicates the case number starting from 1, and **name** is the player who will win the game.

Example

standard input	standard output
4 4 9 2 0 7 10 2 0 6 39 2 0 5 28 2 0	Case 1: Alice Case 2: Alice Case 3: Alice Case 4: Bob

Note

$1 \leq T \leq 100$

$2 \leq x, y \leq 10^6$

$2 \leq K \leq \min(x, y)$

$0 \leq w \leq 1$

For 90% test cases: $\max(x, y) \leq 1000$