

Problem G

Snakes and Ladders

Let us play a version of Snakes and Ladders without any snakes or ladders (they are just implied). If you are not familiar with the game, you are not at a disadvantage, because rules are relatively simple.

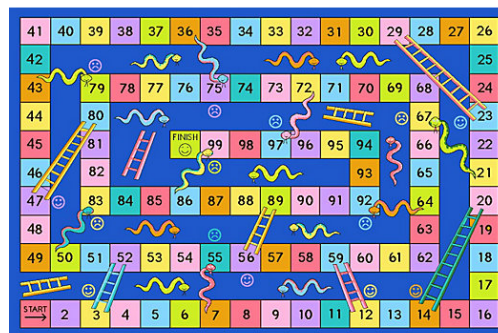
The game consists of a die, a game piece and a “board”. The “board” is actually a tape, one cell high and $N + 1$ cells long, where cells are numbered from 0 to N in order and each cell contains an integer.

The move consists of tossing the die, moving the game piece forward (away from 0) by the number shown on the die’s side up. If this move would take our piece outside the board, we have to repeat the die toss - this is a new move. (For example, if $N=10$ and our game piece is on the cell 9, we have to wait for the die to show “1”, before we move to the cell 10 and win the game.) During the same move, we execute an additional move action, depending on the number contained in the cell where the game piece landed. If the value is positive, we move the game piece forward by that many cells. If the value is negative we move the game piece backwards (away from N) by its absolute value. Otherwise, we do nothing further.

We start inside the cell 0 and the game is won if, after some number of moves, our game piece lands on the cell with the label N .

Note that it is guaranteed that any non-zero value will cause the game piece to move to a cell containing 0. Of course, this implies that the values in the cells numbered 0 and N are always 0.

Several games were played but the results were lost. Luckily, someone recorded all the die tosses. Given the Snakes and Ladders board and the list of results of die tosses, can you tell if the game was won?



Input

The input file starts with an integer $T(1 \leq T \leq 50)$, the number of test cases.

Each test case with two integers on the first line, N and $M(1 \leq N, M \leq 100)$. The second line contains $N + 1$ action values for each cell (we start from the cell 0). The third line contains a die toss record represented as a string of digits from one to six.

You can safely assume that the game piece will stay within the board at all times, no matter what sequence of tosses you get.

Output

For each test case print either “win” or “game in progress” depending if we landed on the N^{th} cell during the M moves. Note: It is possible that the game was over and the player kept tossing the die, which was still being recorded - see examples for clarification.

Sample Input

```
2
6 5
0 -1 -2 0 -4 -5 0
33333
6 9
0 -1 -2 0 -4 -5 0
453213132
```

Sample Output

```
win
game in progress
```