Dungeon

Jojo is in a dungeon and he wants to go to the last room where the treasure is guarded by the dungeon boss. To get to the last room, he has to complete several rooms that have other enemies guarding it. Jojo wants to save as much energy as possible because he knows that the last boss is going to be tough. Fortunately, he has a map for the dungeon that shows all the rooms and energy reading that shows the power of enemies in each room. There are three types of rooms, the normal one, where he can defeat the enemy easily that he doesn't even have to spend any energy, room with mini-boss in it, where Jojo has to spend energy equal to the power of the mini-boss to defeat them, and the boss room. The mini-boss rooms are the room that has energy reading that is higher than the room right before it and the room right after it (the first and last room won't be a mini-boss room) and the boss room is the one that has the highest energy level. The dungeon has two entrance, right entrance and left entrance, help him to determine which entrance should he choose to minimize the energy used.

Format Input
First line of the input will contain an integer T, the number of test cases. Then each test case will contain an integer N, the number of rooms. In the next line, there will be N numbers (E_1, E_2, …, E_n), the energy reading for each room.

Format Output
For each test case, print "Case #X: " (X starts from 1), then one the same line print "left" if the left entrance is better, "right" if the right entrance is better, or "same" if entering from both entrance will have the same result.

Constraints
1 <= T <= 10
1 <= N <= 1000
-1,000,000 <= E_1, E_2, …, E_n <= 1,000,000

Sample Input	Sample Output
4 8 1 3 1 2 7 2 3 1 4 1 2 1 3 10 2 1 2 1 2 1 100 1 50 1 7 -100 -10 -100 50 -100 0 -100	Case #1: same Case #2: right Case #3: left Case #4: left

Explanation

Case 1:
The 2nd and 7th room are the mini-boss rooms, 5th is the boss room, and the rest are normal rooms. Both left and right entrance will give the same result 3.

Case 2:
If Jojo enters from the left entrance, then he has to fight mini-boss in the second room, but if he enters from the right entrance, he will get straight to the boss room.

Case 3:
From the left entrance, Jojo has to spend 4 energy (3rd room and 5th room). From the right, Joj has to spend 50 energy (9th room), so it is better to enter from the left entrance.

Case 4:
From the left entrance, Jojo has to spend -10 energy (2nd room). From the right entrance, Jojo has to spend 0 energy (6th room). So it is better to enter from the left entrance.