**Shortcuts Along a Trail**

Samantha runs in the cross country team, and today they are running along an uphill trail that is 100 paces long. Samantha wants to finish as fast as possible, and has decided to take a couple of shortcuts to get to the end. There are two types of shortcuts:

* Uphill shortcut: given a start and end, it puts you further along the trail.
* Downhill shortcut: given a start and end, it puts you further behind the trail.

Samantha runs in turns of 1-6 paces. Given this, can you determine the minimum number of turns she needs to reach the end of the trail? **Each time, Samantha will start at the 1st pace.**

**Input:** The first line of input contains **T**, the number of test cases. The first line of each test case contains **N**, the number of upward shortcuts. The next **N** lines contain two space-separated integers, the start and end of the upward path. After the next **N** lines, there will be **M**, the number of downward shortcuts. The next **M** lines contain two space-separated integers, the start and end of the downward path.

**Output:** For each test case, you will output “CASE #(case number): ” followed by the minimum number of turns it takes to reach the end of the trail.

**Example Input:**

2

3

32 62

42 68

12 98

7

95 13

97 25

93 37

79 27

75 19

49 47

67 17

2

4 50

24 98

1

53 23

**Example Output:**

CASE #1: 3

CASE #2: 4

**Explanation:** In case #1: Samantha runs for 5 paces and then for 6 paces to make it to the 12th pace. There is an uphill shortcut here that leads to pace 98. She runs for 2 more paces to make it to the 100th pace and finishes by running only 3 turns.

In case #2: Samantha runs for 4 paces to make it to an uphill shortcut that leads to the 50th pace. She then runs for 3 paces to the 53rd pace and goes to a downhill shortcut which leads to the 23rd pace. She then runs 1 pace to the 24th pace which leads to the 98th pace. She runs for 2 more paces to finish. She finished in 4 turns.