D-One	Logout

CODEFORCES
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A. Alice is Late Again !

time limit per test: 2 s.

memory limit per test: 256 MB

input: standard input

output: standard output

Alice is a student at Dhaka university . He is a very lazy student just like the author . Tonight he was dreaming about becoming the richest person in the world and because of this he was late to get up . Now he is rushing to get to the university and he uses the University Bus for transportation.Alice's University has a lot of buses and they follow different routes to go to the campus.

Alice's university has "n" buses and each bus has mi (1 <= mi <= 100, for each i from 1 to n) stoppages. Each bus stops at campus which is at stoppage "0" . Bus follows a1, a2,a3,, …………..ami-1 , ami [ami = 0]

While going to the campus a bus needs to pick up students from different places so the route of stoppages will not always be decreasing . Like : the Bus Route can follow : (Starting) 5 -> 2 -> 3 -> 1 -> 0 (Campus)

Different buses will have different routes and for each route Every stoppage is unique , no stoppage is visited twice in a single route.

Alice is in a rush , he can't wait much longer . All the buses have started to move from their starting position and He is already x minutes late .He wants to reach campus as fast as possible . For each bus the time takes to reach next stoppage is the that stoppage minus the next stoppage | ai - ai+1 | (for, i = 1 to n - 1) . Alice is in position p (p > 0).

What is the minimum time Alice will take to reach campus if he takes the most efficient choice of bus.

Constrains :

My First Mashup

Finished

Contest Manager

⭐

→ Virtual participation   ⌄

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[Start virtual contest]

→ Clone Contest to Mashup   ›

→ Invitations   ⌄

You can invite users to this contest. It will become visible to them regardless of contest

Input

Each test contains multiple test cases. The first line contains the number of test cases t (1 <= t <= 10^4) The description of the test cases follows. The first line of each test case contains one integer n. (1 <= n <= 100) Next n lines contain an integer m the number of stoppages (2 <= m <= 100) of that bus. Then there is m integers, positions of the stoppages, , ,a1, a2,a3,, …………..ami-1 , ami. Last stop is 0, campus . (0<= ai <= 1000) Then two integers p and x representing Alice's current stoppage and how much time he is late. (0 < p) , (1 <= x <= 1000)

Output

Output the minimum time for Alice to reach campus or state that Alice will not be able to catch any bus by printing -1. See the sample input and output to get a better understanding.

Example

input	Copy

```
1
3
5
5 2 3 1 0
4
6 7 5 0
4
6 7 8 0
3 1
```
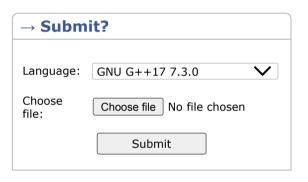
output	Copy

```
6
```

Note

Among the three routes only 1st bus route has a stoppage at 3, Alice's stoppage . Now , the bus is at stoppage 4 after time x. So , Alice will wait (2 + 1) then it will take him (2 + 1) more time to reach campus .

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