

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

E. Rendez-vous de Marian et Robin

time limit per test: 5 seconds
memory limit per test: 256 megabytes

In the humble act of meeting, joy doth unfold
like a flower in bloom.

Absence makes the heart grow fonder. Marian sold her last ware at the Market at the same time Robin finished training at the Major Oak. They couldn't wait to meet, so they both start without delay.

The travel network is represented as n vertices numbered from 1 to n and m edges. The i -th edge connects vertices u_i and v_i , and takes w_i seconds to travel (all w_i are even). Marian starts at vertex 1 (Market) and Robin starts at vertex n (Major Oak).

In addition, h of the n vertices each has a single horse available. Both Marian and Robin are capable riders, and could mount horses in no time (i.e. in 0 seconds). Travel times are halved when riding. Once mounted, a horse lasts the remainder of the travel. Meeting must take place on a vertex (i.e. not on an edge). Either could choose to wait on any vertex.

Output the earliest time Robin and Marian can meet. If vertices 1 and n are disconnected, output -1 as the meeting is cancelled.

Input

The first line of the input contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases.

The first line of each test case consists of three integers n, m, h ($2 \leq n \leq 2 \cdot 10^5$, $1 \leq m \leq 2 \cdot 10^5$, $1 \leq h \leq n$) — the number of vertices, the number of edges and the number of vertices that have a single horse.

The second line of each test case contains h distinct integers a_1, a_2, \dots, a_h ($1 \leq a_i \leq n$) — the vertices that have a single horse available.

Then follow m lines of each test case, each with three integers u_i, v_i, w_i ($1 \leq u_i, v_i \leq n$, $2 \leq w_i \leq 10^6$) — meaning that there is an edge between vertices u_i and v_i with travel cost w_i seconds without a horse.

There are no self loops or multiple edges. By good fortune, all w_i are even integers.

It is guaranteed that the sums of both n and m over all test cases do not exceed $2 \cdot 10^5$.

Output

For each test case, output a single integer, the earliest time Robin and Marian can meet. If it is impossible for them to meet, output -1 .

Example

input	Copy
6 2 1 1 1 1 2 10 3 1 2 2 3 1 2 10 3 3 1 2 1 2 4 1 3 10 2 3 6 4 3 2 2 3 1 2 10 2 3 18 3 4 16 3 2 1 2 1 2 4 1 3 16 7 7 1 3 1 5 2 2 6 12 1 2 12 6 4 8 7 3 4 6 3 4 7 6 4	
output	Copy
5 -1 6 19 14 12	

Note

In the first test case, Marian rides from vertex 1 to vertex 2, Robin waits.

In the second test case, vertices 1 and 3 are not connected.

In the third test case, both Marian and Robin travel to vertex 2 to meet.

In the fourth test case, Marian travels to vertex 2 without a horse, mounts the horse at vertex 2 and rides to vertex 3 to meet Robin.

In the fifth test case, Marian travels to vertex 2 without a horse, mounts the horse at vertex 2 and rides back to vertex 1 and then to vertex 3. Robin waits.

Codeforces Round 974 (Div. 3)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
302271626	Jan/21/2025 20:32	Accepted
302257699	Jan/21/2025 19:03	Wrong answer on test 1

→ Problem tags

dfs and similar graphs shortest paths

*1800

No tag edit access

→ Contest materials

Announcement (en)

Tutorial #1 (en)

Tutorial #2 (en)