Problem F - Travelling by Wormholes

The end is near, and Cooper is trying to save humanity by finding a Earth-like planet for humans to migrate to. Through the advanced sensors equipped on his spaceship, he has detected the location of a far-away planet that might have signs of water.

Though the planet is very far away, fortunately Cooper has also detected k $(0 \leq k \leq 100)$ wormholes in spacetime. From one wormhole, he can travel to any other wormhole in the universe, but this will also travel through some amount of time t_w $(1 \leq t_w \leq 10^5)$ into the future. This t_w may be different for each wormhole, but is determined by just the source wormhole and not the destination. This means, that although each wormhole is bidirectional, the time it jumps Cooper may be different in one direction vs the other.

The planets are numbered from 1 to n $(2 \leq n \leq 1000)$, with Earth (Cooper's starting location) being planet 1 and the target planet being planet n. Each planet may also have a wormhole located next to it that can be used to travel to any other wormhole in the universe. The International Space Transport Association (ISTA) have designated r $(1 \leq r \leq 10^4)$ routes between various planets that are free of debris and safe to travel, and have also given an estimated travel time t_i $(1 \leq t_i \leq 1000)$ for each route.

Help Cooper plan out his journey by finding the shortest amount of time it would take to reach his destination!

Input

The first line of the input consist of a single integer t $(1 \leq t \leq 100)$, the number of test cases.

The first line of each test case contains three integers n, k, and r $(2 \leq n \leq 1000; 0 \leq k \leq 100; 1 \leq r \leq 10^4)$ - the number of planets, the number of wormholes, and the number of legal routes between planets, respectively.

The next k lines consists of two integers each, a_w and t_w $(1 \leq a_w \leq n; 1 \leq t_w \leq 10^5)$, the number of a planet with a wormhole nearby, and the amount of time leaped forward when traveling from this wormhole to any other wormhole, respectively.

The final r lines of each test case each will contain three integers, a_i, b_i, and t_i $(1 \leq a_i, b_i \leq n; 1 \leq t_i \leq 1000)$. Each line will designate a legal bidirectional route between planets a_i and b_i that takes t_i units of time to travel.

Output

Output one line with a single integer for each test case, the shortest amount of time it would take to reach the target planet from Earth. It is guaranteed that a route can be found.

Sample Input

```
2
6 3 6
3 1
2 2
5 4
1 3 2
5 6 10
2 4 3
1 4 8
2 6 7
4 6 3
2 1 1
1 1
1 2 100
```

Sample Output

```
9
100
```

Explaination: In the first test case, there are three planets with wormholes, planets 2, 3, and 5. The optimal path for this case is:

1 - 3 - (wormhole) - 2 - 4 - 6

This gives a total time of 9.

In the second test case, there is only one wormhole so travel by wormhole is not possible. We just have to take the only available path, for a total time of 100.

Note: Only a small number of the maximal test case will be tested. The rest will be much smaller graphs.