F. Find the Inn

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

On holidays, Bolado decided to go on an adventure. Bored with the urban life, he decided to travel to the mountains, where he'd have the time to discover new places and think in jokes. Upon his arrival, Bolado found himself surrounded by avast and dense forest, with trees of various types, which make his instincts lead him to the following thought.

"Why does the pine tree never gets lost in the woods?"

"Because he has a pine cone!"

(Read the statement in Portuguese to understand the joke)

Glad with the joke he made, Bolado could only think about it while looking for the inn. However, it didn't take too long until our beloved jokester noticed he was lost. Fortunately, he had a map of the area.

In the map there are N areas, numbered from 1 to N. Bolado is currently lost in the area 1 and the inn is in area N. There's also M directional paths which connect two distinct areas. Each path has also a description containing the time in minutes needed to cross it.

Additionally, because environmental preservation matters, P of the N areas have a pine tree. There are no pine trees in area 1 and area N. Whenever Bolado finds himself in one of these areas, he needs to stop and laugh for K seconds while remembering his master piece. There are T minutes left until the sun sets and Bolado wants to arrive at the inn ASAP (so he can think about inn related jokes).

Input

The first line contains five integers, N ($2 \le N \le 3 * 10^4$), M ($0 \le M \le 10^5$), T ($0 \le T \le 5 * 10^7$), K ($1 \le K \le 5 * 10^7$), P ($0 \le P \le N - 2$), as described above. Then follows P integers p_i ($1 \le p_i \le N, \forall i : 1 \le i \le P$). After, there are M lines describing each path with three integers x_j, y_j and w_j, indicating that Bolado can go from area x_j to area y_j in w_j minutes, for $1 \le j \le M$ ($x_j \ne y_j$; $1 \le x_j, y_j \le N$ and $1 \le w_j \le 10^5$).

Output

Print the minimum time Bolado can arrive at the inn. If he can't arrive before or at the same time the sun sets, print “-1” without the quotes.

Examples

input Copy

```
5 7 312 10 2
3 2
1 2 8
4 5 98
3 2 12
5 2 30
5 1 103
3 4 65
2 3 1
```

output Copy

```
10340
```

input Copy

```
4 6 29370 22446 1
3
4 2 32014
2 3 24
2 1 67
4 3 16
```

UFPE Starters Final Try-Outs 2018

Finished

→ About Contest

UFPE freshmen try-outs, last step of selection for newcomers

→ 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

→ Contest materials

- Statements #1 (pt)
- Statements #2 (pt)
- Statements #3 (en)

```
1 2 633
2 4 4298
```

output Copy

```
295860
```

input Copy

```
3 2 701 8561 1
2
2 1 346
3 1 9
```

output Copy

```
-1
```
