

Special Delivery (700 points)

Introduction

Serena just got a new job as a courier, who must make one very important delivery each night within a strict time window. Last night was her first delivery but she missed the deadline and therefore didn't get paid for the delivery. The reason she didn't make the delivery on time is because many streets on her path were closed off due to a street cleaner.

When the street cleaner enters a given street, it is blocked off on both sides such that all cars must wait until the cleaner exits the street. Vehicles that entered the street before the street cleaner can continue driving.

Serena wants to avoid a similar situation tonight by planning her route better. The street cleaner route and schedule are published in advance, helping her to optimize her route.

The city is modeled with intersections and two-way streets connecting them. For each street, Serena knows how much time she needs to traverse it (the street cleaner needs the same amount of time).

For example, if the street cleaner starts traversing a street during minute 10 and needs 5 minutes to exit it, this street will be blocked during minutes 10, 11, 12, 13 and 14. Serena can enter the street during minutes 9 and earlier, or 15 and later.

Write a program that calculates the least amount of time Serena needs to make her delivery, if she starts driving K minutes after the street cleaner begins its shift.

Input Specifications

The first line contains two integers N and M ($2 \leq N \leq 1000$, $2 \leq M \leq 10\,000$), the number of intersections and the number of streets. The intersections are numbered 1 to N . The second line contains four integers A , B , K and G ($1 \leq A, B \leq N$, $0 \leq K \leq 1000$, $0 \leq G \leq 1000$). These are, in order:

- The intersection where Serena begins;
- The intersection Serena must get to;
- The difference in starting times between Serena and the street cleaner (Serena starts at intersection A exactly K minutes after the street cleaner starts its route);
- The number of intersections on the street cleaner's route.

The third line contains G integers, the labels of intersections the street cleaner will visit. Every pair of adjacent integers denotes a street it will traverse. That street will exist and the cleaner will traverse every street at most once. Each of the following M lines contains three integers A , B and L , meaning that there is a street between intersection A and B , and it takes L minutes to traverse. L will be between 1 and 1000.

Output Specifications

Output the least amount of time (in minutes) Serena needs to make her delivery.

Sample Input/Output

Input

6 5
1 6 20 4
5 3 2 4
1 2 2
2 3 8
2 4 3
3 6 10
3 5 15

Output

21

Explanation

It will take 21 minutes for Serena to make her delivery.

Input

8 9
1 5 5 5
1 2 3 4 5
1 2 8
2 7 4
2 3 10
6 7 40
3 6 5
6 8 3
4 8 4
4 5 5
3 4 23

Output

40

Explanation

It will take 40 minutes for Serena to make her delivery.