Travel

Time Limit: 1 Second
Memory Limit: 2048 MB

Mattox loves traveling in different countries with his family. This summer, he decides to explore an amazing country located in the Pacific. The country consists of n islands that are connected to each other with airports, but only the capital city (vertex 1) has an international airport with flights back to US. Since the population of the country is very small, only $n-1$ airline routes are operated.

Mattox has listed the islands he wants to visit and figured out the ticket prices for each of these routes. Now he is wondering what would the total cost of his trip be if he starts at the capital city, visits all islands he listed in sequence, and ends at the capital city. Since Mattox is very busy making problems for his competitive programming class, can you help him calculate the answer?

Input

The first line contains two integers n and m ($1 \leq n \leq 10^5$, $0 \leq m < n$) - the number of islands in the country and the number of islands Mattox is planning to visit.

The next $n-1$ lines describe the airline routes in the country. The i-th line contains three integers u_i, v_i, and w_i ($1 \leq u_i, v_i \leq n$, $1 \leq w \leq 10^9$), denoting a two-way route between island u_i and v_i with price w_i.

The final line of input contains m integers $a_1, \ldots, a_m$ ($1 < a_i \leq n$) - the islands Mattox wants to visit in sequence. It is guaranteed that the islands are unique.

Output

Output a single integer denoting the cost of the trip.

Sample Inputs

```
4 2
1 2 2
1 3 2
2 4 3
2 3
```

Sample Outputs

```
8
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