VPEX P4 - Etopika

Time limit: 3.0s **Memory limit:** 128M

Bobliu the monkey lives on a banana tree. The tree can be modelled as a tree (a connected graph with N nodes and $N-1$ edges). Bob is currently on the ground, marked node 1. Every day, 2 new nodes (not always distinct) grow a banana, and Bob climbs from his current spot to the 2 bananas (in any order) and eats them. He then takes a nap where he is and sleeps until the next day. What is the least distance he must travel?

Input Specification

The first line contains N, the number of nodes, and D, the number of days.

The next $N-1$ lines contain a, b, and c, marking a branch between a and b of length c.

The next D lines contain x and y, the location of the 2 bananas that day.

Output Specification

Output the minimum total distance the monkey must travel.

Constraints

For all subtasks:

$1 \leq a, b, x, y \leq N$

$0 \leq c \leq 1000$

$1 \leq N \leq 10^5$

$1 \leq D \leq 10^6$

Subtask 1 [10%]

$1 \leq D, N \leq 10$

Subtask 2 [20%]

$1 \leq N \leq 1000$

Sample Input

```
5 2
1 2 4
2 4 3
4 3 1
5 4 1
5 3
2 5
```

Sample Output

```
14
```

On the first day, Bob starts at node 1 and travels to node 3 and then node 5 to eat the bananas.

On the second day, Bob is already at node 5 and eats the banana before travelling to node 2.