Gosha and celebration parties

Input file:	`events.in`
Output file:	`events.out`
Time limit:	3 seconds
Memory limit:	512 megabytes

It's known that inhabitants of Innopolis planet are very pedantic. Even when they are to organize celebration party, they want to be sure, that everything is like clockwork. So, schedule for all the celebrations on the planet is designed for three million years ahead. Gosha loves partying. He decided to come to Innopolis and attend as many parties as possible.

Innopolis consists of n cities, connected with $n - 1$ bidirectional roads, such that between every pair of cities, there is exactly one way of travelling using the roads. Every celebration party is described by city c_i, where the party is going to be thrown, and day d_i — when the party is going to be thrown.

Gosha is very lucky, so that he comes to Innopolis on day 0 and he can choose which city he is going to land. Gosha is interested in the maximum number of parties he can attend on the planet. Help him.

Input

First line contains integer n ($n \geq 1$) — number of cities in Innopolis.

Each of the next $n - 1$ lines contains three integers a_i, b_i and l_i ($1 \leq a_i, b_i, \leq n$; $l_i \geq 1$) — describing the road, connecting cities a_i and b_i, and the number of days it takes to travel from city a_i to b_i by this road.

Next line contains integer m ($m \geq 1$) — number of thrown celebration parties in the schedule.

Each of the next m lines contains two integers c_i and d_i ($1 \leq c_i \leq n$; $d_i \geq 1$) — description of celebration party i thrown in city c_i on day d_i.

Output

Output single integer — maximum number of celebration parties Gosha can attend.

Scoring

Subtask	Points	Constraints				Scoring
		n	m	l_i	d_i	
0	0					sample tests
1	14	$n \leq 100$	$m \leq 9$	$l_i \leq 100$	$d_i \leq 100$	subtask
2	17	$n \leq 2000$	$m \leq 2000$	$l_i \leq 5000$	$d_i \leq 5000$	subtask
3	28	$n \leq 5000$	$m \leq 5000$	$l_i \leq 10^9$	$d_i \leq 10^9$	subtask
4	22	$n \leq 10^5$	$m \leq 10^5$	$l_i \leq 10^9$	$d_i \leq 10^9$	subtask
5	19	$n \leq 2 \cdot 10^5$	$m \leq 2 \cdot 10^5$	$l_i \leq 10^9$	$d_i \leq 10^9$	test

Examples

events.in	events.out
4 1 2 1 2 3 1 2 4 3 4 1 3 2 4 3 1 4 5	3