A – Bandits

Time limit: 5 s *Memory limit: 512 MiB*

There is a kingdom with N villages and $N-1$ bidirectional roads that allow the citizens to travel between any pair of villages following a path consisting of one or more roads. The i-th road connects villages A_i and B_i and has length C_i.

The king has noticed an increasing number of complaints about bandits attacking the merchants travelling along the roads in the kingdom. He has tasked his advisor with solving this problem by hiring loyal groups of thugs that will act as security agencies. Each such security contract guarantees security of all roads in a radius of R_j from the village X_j with the group's headquarters. A road is protected by the contract if it is part of a path of length at most R_j from X_j to some other village. Some roads may be protected by several contracts and are therefore more secure.

Write a program that will process queries about new contracts and answer queries about the security of individual roads, that is the number of contracts currently securing that road.

Input data

The first line contains the number of villages N. The roads connecting these villages are described in the following $N-1$ lines. The description of each road consists of space-separated integers A_i, B_i and C_i, which represent a road of length C_i between villages A_i and B_i. The villages are numbered from 1 to N.

Next line contains the number of queries Q. The following Q lines describe the queries. The query that represents a new security contract starts with character `'+'` and is followed by the headquarters village X_j and security radius R_j. The query about the security of some road starts with character `'?'` and is followed by the number Y_j of that road. The roads are numbered from 1 to $N-1$ in order in which they are given in the input.

Input limits

- $1 \leq N, Q \leq 10^5$
- $0 \leq C_i, R_j \leq 10^9$

Output data

Process the queries in the given order and for every query of type `'?'` output one line with the current number of contracts securing the road Y_j.

Example

Input	Output
7 1 2 4 4 2 7 5 1 3 3 6 4 1 6 9 2 7 1 7 + 2 6 ? 3 ? 1 + 6 14 ? 1 ? 2 ? 3	0 1 2 0 1