

F. The Lorax

time limit per test: 10 seconds
memory limit per test: 256 megabytes

I am the Lorax, and I speak for the Trees!

Plant many of them, plant many now please,

We all live in Thneedville, a connected component,

that has n nodes and $n - 1$ edges this moment,

q times we'll make x_i seeds and the same number of pots,

but in different places, believe it or nots.

Match each seed with a pot, and each pot with a seed

But match in a way that's special indeed:

The total sum of the distances between every pair

must be minimized to keep clean the air.

But if x_i is zero and there is no objection,

we'd like you to answer the following question:

If you were to match everything now in the way you've been told

How many pairs would cross this given road?

**This problem has the same idea, data, and samples (but different flavor-text) as another problem written for a training camp by Travis Meade, and tested by myself. Seems to me to be a notorious coincidence. :)

Input

The first line will contain a single integer c : the number of test cases.

For each testcase, the first line contains n and q : the number nodes in Thneedville, and the number of queries. $n - 1$ lines follow, each containing a pair of integers describing the edges in Thneedville.

q lines follow, each of the form $a\ b\ x_i$. If x_i is zero, we are asking about the number of matched pairs that cross the edge from a to b (there will always be an edge directly connecting a to b). Otherwise, it indicates that we have created x_i seeds at node a , and x_i pots at node b .

$$c \leq 20$$

$$1 \leq n, q \leq 10^5$$

$$1 \leq a, b \leq n$$

$$0 \leq x_i \leq 10^8$$

Output

For each query in which x_i is zero, print a single integer: the number of pairs crossing the queried edge.

Example

input	Copy
2 6 5 1 2 2 3 3 4 4 5 4 6 1 6 2 2 5 3 4 3 0 6 2 2 4 3 0 4 6 1 2 1 3 4 1 1 2 0 3 4 5 4 2 1 1 3 0 1 4 0 1 2 0	
output	Copy
5 3 0 5 4 1	

AlgorithmsThread Tree Basics Contest

Finished

Practice



→ About Contest



AlgorithmsThread Tree Basics contest.
Problems written by David Harmeyer (SecondThread), with some data/ideas from Travis Meade.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win)

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
320692025	May/21/2025 22:11	Accepted
318217995	May/03/2025 15:25	Accepted
318215880	May/03/2025 15:02	Wrong answer on test 2

→ Contest materials

- Announcement (en)