An easy Problem

Problem Statement

Seeing so much companies coming for placement in ISM, BABBU also started coding. After rigorous coding for two months , he got bored in solving problems . Now he wants to become problem setter. In order to set problems he took advice from his friends GOTU and CHHOTU.

After having a heavy discussion they came up with a problem which goes like this.....

You are given a tree rooted at 1.

And you are given Q number of queries to perform on tree.

For each query you are given u, x and y, where u denotes the node number.

You have to add value x to the node u, x+y to its all children at depth 1(one), x+2y to all its children at depth 2, .. , x + d*y to all its children at depth d and so on.

Input Format

First line of input contains N (total number of nodes in tree).
Next N-1 lines contain u and v .
i.e there is and edge between u and v.
Next line contains a single integer Q , indicating total number of queries to perform on tree.
Next Q lines contain u x y.
1<=N <=100000
1<=u <= N
1<=x, y <=100000
1<=Q<=100000

Output Format

You have to output final values of each node from 1 to N after performing Q queries.
Since values may be large print it modulo 1000000007

Sample Input

10

4 9

6 4

7 10

5 3

2 6

1 5

5 10

3 8

7 2

5

7 8 1

1 10 7

7 4 7

1 4 1

2 6 2

Sample Output

14

72

30

108

22

90

50

38

126

30