

Circular Rain

Input file: **standard input**
Output file: **standard output**
Time limit: 3 seconds
Memory limit: 1024 megabytes

There is a tree with n vertices, and each edge has an integer weight (not necessarily positive).

Now, for this tree, several events may occur. Each event is one of the following two types:

1. The weight of a certain edge changes.
2. A circular rain with radius k has fallen centered at vertex u . The set of all vertices that got wet is $S = \{x \mid \text{dis}(x, u) \leq k\}$, where $\text{dis}(i, j)$ denotes the **number of edges** on the simple path between vertices i and j in the tree ($\text{dis}(x, x) = 0$). You want to choose a **connected subgraph** from S such that its total weight is maximized.

For a graph $G = (V, E)$ and a vertex set $S \subseteq V$, if a vertex set V' ($V' \subseteq S$) together with all edges of the original graph whose both endpoints lie in V' forms a connected subgraph, then the subgraph is called a “**connected subgraph** of S ”.

The weight of a connected subgraph is the sum of the weights of all the edges it contains.

You need to output the answer for each event of type 2.

Input

The first line contains two integers n and q ($2 \leq n \leq 10^5$, $1 \leq q \leq 10^5$).

The next $n - 1$ lines each contain three integers x_i, y_i, w_i ($1 \leq x_i, y_i \leq n$, $-10^9 \leq w_i \leq 10^9$, $x_i \neq y_i$), representing an edge of the tree and its initial weight. The i -th edge in the input is numbered i .

The next q lines are as follows:

- First, an integer typ_i ($typ_i \in \{1, 2\}$) indicating the type of event.
- If $typ_i = 1$, then there are two more integers id_i and v_i ($1 \leq id_i \leq n - 1$, $-10^9 \leq v_i \leq 10^9$), meaning that the weight of edge id_i is changed to v_i .
- If $typ_i = 2$, then there are two more integers u_i and k_i ($1 \leq u_i \leq n$, $1 \leq k_i \leq n$), representing the parameters of the query.

Output

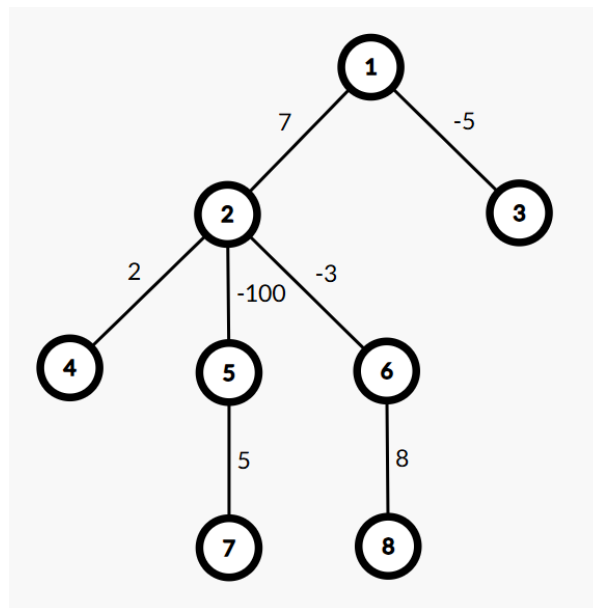
For each event with $typ_i = 2$, output one line containing an integer, which is the answer to the corresponding query.

Example

standard input	standard output
8 6	7
1 2 7	14
1 3 -5	10
2 4 2	9
2 5 -100	
2 6 -3	
5 7 5	
6 8 8	
2 1 1	
2 2 8	
1 4 -4	
2 7 3	
1 6 3	
2 7 3	

Note

In the sample, the initial tree is as shown in the figure:



For the 1st event, we choose the vertex set $V' = \{1, 2\}$, and its weight is 7.

For the 2nd event, we choose the vertex set $V' = \{1, 2, 4, 6, 8\}$, and its weight is $2 + 7 + (-3) + 8 = 14$.

For the 3rd event, we change the weight of edge $(2, 5)$ to -4 .

For the 4th event, we choose the vertex set $V' = \{1, 2, 4, 5, 7\}$, and its weight is $2 + 7 + (-4) + 5 = 10$.

For the 5th event, we change the weight of edge $(5, 7)$ to 3.

For the 6th event, we choose the vertex set $V' = \{1, 2, 4\}$, and its weight is $2 + 7 = 9$.