Problem A. Vertex Queries

Input file:	`vertex.in`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	512 megabytes

In this problem, you will be given a tree (a connected acyclic graph) and a number of queries to answer. Each vertex of the tree stores a value (initially all zero) and there are two types of queries:

1. 1 u: print the value stored at vertex u.
2. 2 u x: add the value x to all the neighbors of vertex u. The neighbors of a vertex are the vertices connected to it by a single edge.

Input

The first line of the input contains an integer T ($1 \leq T \leq 100$) — the number of test cases.

The first line of each test case contains two integers N and M ($1 \leq N, M \leq 10^5$) — the number of tree vertices and the number of queries. Then, $N - 1$ lines follow each containing two numbers u and v ($1 \leq u, v \leq N$) meaning that there is an edge connecting vertices u and v. Then, M lines follow each specifying a query. Queries of the first type have the format 1 u ($1 \leq u \leq N$). Queries of the second type have the format 1 u x ($1 \leq u \leq N$ and $-10^4 \leq x \leq 10^4$)

Output

For each query of the first type, print the answer on a separate line.

Example

vertex.in	standard output
1 7 6 1 5 1 6 6 7 6 4 4 3 4 2 2 6 50 2 7 40 2 2 2 1 1 1 6 1 3	50 40 0