**Problem H. Tree**

We have a weighted tree with ***N*** nodes, 2 ≤ ***N*** ≤ 150 001. These nodes are numbered from 0 to ***N*** – 1. The root of the tree is node 0. You have to find the distance between two particular nodes.

**Input**

Each test case begins with the number ***N*** of nodes of the tree. The following ***N*** – 1 lines contain two integers each. The ***ith***line contains the parent of the node ***i*** and the distance between them ***d***, 0 ≤ ***d*** ≤ 100. The following line signifies the number of the queries ***Q***, 0 ≤ ***Q*** ≤ ***N***. Each of the following ***Q*** lines comprises of a pair of node numbers. Find the distance between the nodes of each pair. The input is terminated when ***N*** = 0.

**Output**

For each query, output the distance between the corresponding nodes given on a separate line.

|  |  |
| --- | --- |
| **Input** | **Output** |
| 16  0 1  1 2  1 3  2 2  2 4  3 1  6 4  5 2  4 1  4 5  9 4  9 2  12 3  7 2  7 1  7  13 15  8 2  0 14  9 10  14 8  10 11  13 8  0 | 19  6  11  6  18  10  14 |