You are given an undirected tree[1] with each of its node assigned a magic X_i.
The magic of a path[2] is defined as the product of the magic of the nodes on that path divided by the number of the nodes on the path. For example, the magic of a path that consists of nodes with magic 3 and 5 is 7.5 ($3 \cdot 5 / 2$).

In the given tree, find the path with the minimal magic and output the magic of that path.

INPUT

The first line of input contains the integer N ($1 \leq N \leq 10^6$), the number of nodes in the tree.
Each of the following N - 1 lines contains two integers, A_i and B_i ($1 \leq A_i, B_i \leq N$), the labels of nodes connected with an edge.
The i^{th} of the following N lines contains the integer X_i ($1 \leq X_i \leq 10^9$), magic of the i^{th} node.

OUTPUT

Output the magic of the path with minimal magic in the form of a completely reduced fraction P/Q (P and Q are relatively prime integers).

In all test cases, it will hold that the required P and Q are smaller than 10^{18}.

SCORING

In test cases worth 24 points total, it will hold $N \leq 1\,000$.
In test cases worth 36 additional points total, there will not be a node that is connected to more than 2 other nodes.

SAMPLE TESTS

input	input
2 1 2 3 4	5 1 2 2 4 1 3 5 2 2 1 1 1

[1] An *undirected tree* is a connected graph that consists of N nodes and N - 1 undirected edges.
[2] A **path** in a graph is a finite sequence of edges which connect a sequence of vertices which are all distinct from one another

	3
output	**output**
3/1	1/2

Clarification of the first test case:
Notice that the path may begin and end in the same node. The path with the minimal magic consists of the node with magic 3, so the entire path's magic is 3 / 1.

Clarification of the second test case:
The path that consists of nodes with labels 2 and 4 is of magic $(1 \cdot 1) / 2 = 1 / 2$.
That is also the path with the minimal possible magic.