rebuild

Last year, Barr the Bear destroyed a tree. This year, he has rebuilt the tree, with weighted edges! A tree connects N vertices with $N-1$ edges, where every vertex is indirectly or directly connected to every other vertex through edges. A tree whose edges are weighted means each edge e is assigned a value v_e. But I'm sure everyone knows that.

Now, he is curious: What is the maximum average edge value of a path of length between L and U (inclusive)? The length of a path from vertex a to b is the number of edges in the unique path between a and b in the tree.

Input

The first line contains an integer N, the number of vertices.

The next line contains two integers L and U, the constraints on the path length.

The next $N-1$ lines contain three space-separated integers a_i, b_i and v_i each, representing an edge between vertex a_i and b_i, with value v_i. Vertices are numbered $1..N$.

Output

Output a single line with a single number, rounded to 3 decimal places: The maximum average edge value of a path of length between L and U (inclusive).

Grading

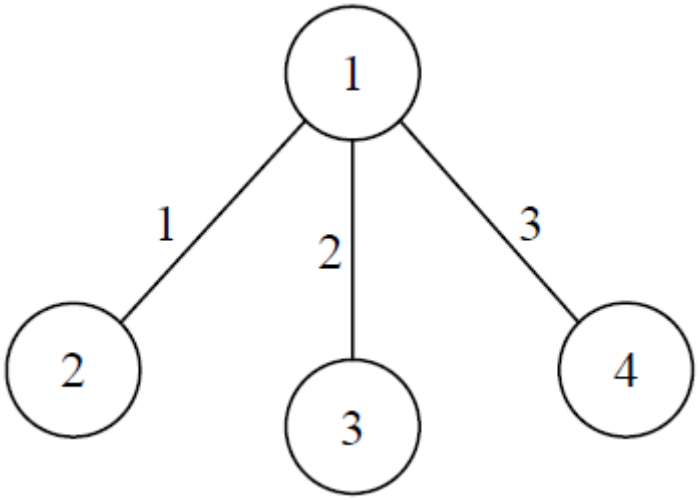
In 20% of test data, $N \leq 5000$.

In 30% of test data, $N \leq 100000$. The tree is a line.

In 100% of test data, $N \leq 100000$; $1 \leq L \leq U \leq N-1$; $v_i \leq 10^6$.

Sample Input and Output

Input	Output
4 2 3 1 2 1 1 3 2 1 4 3	2.500



Taking edges (3, 1) and (1, 4) creates a path of length 2, with average edge value 2.5.