A Average distance

Given a tree, calculate the average distance between two vertices in the tree. For example, the average distance between two vertices in the following tree is $(d_{01} + d_{02} + d_{03} + d_{04} + d_{12} + d_{13} + d_{14} + d_{23} + d_{24} + d_{34})/10 = (6 + 3 + 7 + 9 + 9 + 13 + 15 + 10 + 12 + 2)/10 = 8.6$.

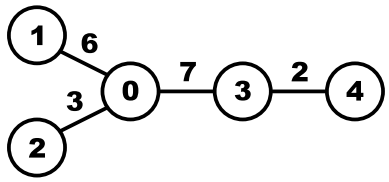


Figure 1: The first sample case

Input

On the first line an integer t ($1 \leq t \leq 100$): the number of test cases. Then for each test case:

- One line with an integer n ($2 \leq n \leq 10\,000$): the number of nodes in the tree. The nodes are numbered from 0 to $n - 1$.
- $n - 1$ lines, each with three integers a ($0 \leq a < n$), b ($0 \leq b < n$) and d ($1 \leq d \leq 1\,000$). There is an edge between the nodes with numbers a and b of length d. The resulting graph will be a tree.

Output

For each testcase:

- One line with the average distance between two vertices. This value should have either an absolute or a relative error of at most 10^{-6}.

Sample in- and output

Input	Output
1 5 0 1 6 0 2 3 0 3 7 3 4 2	8.6