

Problem Drawing

Input file `stdin`
Output file `stdout`

Story

In 2010, the "Moțoc" kindergarten held an unusual chalk drawing contest in Iași. Each participant had to create a beautiful drawing, but was allowed to lift the chalk off the ground and resume drawing elsewhere only a limited number of times.

Sixteen years later, inspired by that contest, one of the children who took part in it came up with the following problem idea:

Statement

A **tree** is a connected undirected graph without cycles, having N vertices and exactly $N - 1$ edges. A **weighted tree**, with N vertices labeled from 1 to N , needs to be drawn.

The weight of each edge e , which is a value $w(e)$, represents the exact amount of chalk consumed to trace the edge e .

A **drawing** of the tree is a way to traverse the tree with a piece of chalk such that **every edge is traversed at least once**. During the drawing, we are allowed to:

- **retrace** edges, meaning that we can traverse them multiple times; each time we traverse an edge, we consume the same amount of chalk;
- **lift the chalk** at most K times, relocating it, after each lift, from its current vertex to any other vertex in the tree (lifting and relocating the chalk is instantaneous and costs nothing).

Note: Placing the chalk on the tree for the very first time at the beginning of the drawing does not count as a lift.

The **cost** of a drawing is the total amount of chalk used, which is calculated as $\sum_{e \in E} w(e) \cdot t(e)$, where E is the set of edges and $t(e) \geq 1$ is the number of times edge e is traversed during the entire drawing process.

Task

Given a weighted tree with N vertices and an integer K , determine the **minimum cost** of a drawing of the tree that uses at most K chalk lifts.

Input

The first line of the input contains two space-separated integers N and K , representing the number of vertices and the maximum number of chalk lifts allowed.

The following $N - 1$ lines contain three space-separated integers u , v , and w , meaning there is an undirected edge of weight w connecting vertices u and v .

Output

The first line of the output must contain a single integer, representing the minimum cost of the drawing.

Restrictions

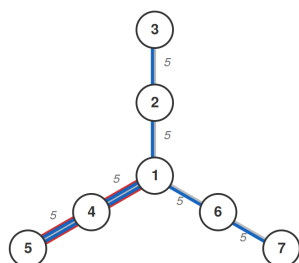
- $0 \leq K < N \leq 2 \cdot 10^5$
- $1 \leq w(e) \leq 10^6$ for any edge
- The given graph is guaranteed to be a valid tree.

#	Points	Restrictions
1	0	Examples
2	6	$K = 0$ and $w(e) = 1$ for every edge.
3	7	$K = 0$.
4	3	The degree of every node is at most 2.
5	8	All $N - 1$ edges have one endpoint in vertex 1.
6	11	$N \leq 200$.
7	10	$N \cdot K \leq 10^7$.
8	12	Every simple path has at most 100 edges.
9	20	$N \leq 7 \cdot 10^4$.
10	23	No further restrictions.

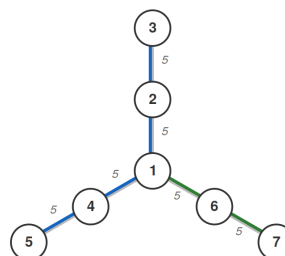
Examples

Input file	Output file
<pre>7 0 1 2 5 2 3 5 1 4 5 4 5 5 1 6 5 6 7 5</pre>	40
<pre>7 1 1 2 5 2 3 5 1 4 5 4 5 5 1 6 5 6 7 5</pre>	30

Explanations



First example ($K = 0$)



Second example ($K = 1$)

For the first example: With $K = 0$, the drawing must be a single continuous traversal of the tree. A valid optimal drawing is: $3 \rightarrow 2 \rightarrow 1 \rightarrow 4 \rightarrow 5 \rightarrow 4 \rightarrow 1 \rightarrow 6 \rightarrow 7$. There are 2 retraced edges: ($[1,4]$ and $[4,5]$).

For the second example: With $K = 1$, one pen lift is allowed. An optimal choice is tracing: $3 \rightarrow 2 \rightarrow 1 \rightarrow 4 \rightarrow 5$, followed by lifting the chalk and relocating it to vertex 1, then tracing $1 \rightarrow 6 \rightarrow 7$.