
Pairs of vertices**P14661_en**

You are given an undirected, connected graph with n vertices and $n - 1$ edges (i.e., a tree), and an integer p . Every vertex x has an integer value v_x . You must choose p pairs of adjacent vertices such that all $2p$ endpoints are distinct. Your goal is to maximize the sum of the values of the chosen vertices.

Input

Input consists of several cases, each with $n, p, v_1, \dots, v_n$ (vertices are numbered from 1 to n), and $n - 1$ pairs $x y$ indicating an edge between x and y . Assume $2 \leq n \leq 10^5$, $1 \leq p \leq \lfloor n/2 \rfloor$, $-10^{-9} \leq v_x \leq 10^9$, and that the given edges indeed define a tree.

Output

For each case, if it is impossible to choose exactly p pairs of adjacent vertices, just print “no”. Otherwise, print the largest possible total sum.

Sample input

```
7 2
4 -3 -1 10 -7 6 2
1 2 2 6 6 5 5 7 2 4 2 3
6 3
-10000000000 -10000000000 -10000000000 -10000000000 -10000000000 -10000000000
1 2 2 3 3 4 4 5 5 6
4 2
10 20 30 40
4 1 4 2 4 3
```

Sample output

```
6
-60000000000
no
```

Problem information

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