Spider tree P98714_en

A spider mom plans to buy a tree (an undirected and connected graph with no cycles) for its progeny. The spider mom has n kids, and wants a tree with $8n$ vertices that can be divided into n subtrees with exactly eight vertices each (one subtree for each kid, with one vertex for each of its eight legs), only by removing $n - 1$ edges. Let us call such a tree a spider tree.

Given a tree with $8n$ vertices, is it a spider tree?

Input

Input consists of several cases, each with n followed by $8n - 1$ pairs x y indicating an edge between x and y. Assume $1 \leq n \leq 10^4$, that the given graph is indeed a tree, and that vertices are numbered starting from zero.

Output

For every tree, tell if it is a spider tree or not.

Sample input 1

```
1
6 1  4 0  1 5  7 1  0 6  3 0  6 2

2
3 8  11 1  3 15  14 11  11 13  0 4  9 0  6 11  0 3  7 11  2 14  0 14  10 4  14 12  14 5
```

Sample output 1

```
yes
no
```

Problem information

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