Funnygraph

First, we notice that for a given graph we can check if the nodes can be labeled so that it respects the given property wtih a simple dfs. We calculate the cost from a source to all other node, and then, the cost between two nodes is simply the difference between the values of the two respective nodes. We also have to check if all the other edges not in the dfs traversal respect the property.

We then do a binary search on the number of edges we consider. All the answers before the position given by the binary search are YES, all of the after NO, for if a restriction is not respected, it will not be respected from now on.