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问题 提交代码 我的提交 状态 榜单 自定义调试

未找到 未找到

F. Tree, TREE!!!

time limit per test: 2 seconds

memory limit per test: 256 megabytes

Roots change, but the tree stands strong — so should your logic.

Behruzbek received a tree* with n nodes. For a chosen root† r , Behruzbek wants to find cuteness of the tree.

Consider every set of k distinct nodes of the tree. For each such set, compute its *lowest common ancestor* (LCA) in the tree when it is rooted at r . Let S_r be the set of all distinct nodes obtained this way; then *cuteness* of the tree is $|S_r|$, where $|S|$ means the number of distinct elements.

After discovering the *cuteness* of trees, Behruzbek became interested in finding the *kawaiiness* of the tree! *Kawaiiness* is defined as:

$$\sum_{r=1}^n |S_r| = |S_1| + |S_2| + \cdots + |S_n|$$

Unfortunately, Behruzbek is feeling sleepy now. Please help Behruzbek by finding the *kawaiiness* of the tree!

*A tree is a connected graph without cycles.

†A rooted tree is a tree where one vertex is special and called the root.

有道翻译

根会变，但树会坚强——你的逻辑也应该如此。

Behruzbek收到一个节点为 n 的树 *。对于选定的根 † r ，Behruzbek想要找到树的可爱度。

考虑树的每一组 k 不同的节点。对于每一个这样的集合，当它的根在 r 时，计算它在树中的最低共同祖先 (LCA)。设 S_r 为通过这种方法得到的所有不同节点的集合；则树的可爱度为 $|S_r|$ ，其中 $|S|$ 表示不同元素的个数。

在发现树的可爱之后，Behruzbek开始对发现树的可爱感兴趣！Kawaiiness的定义是：

$$\sum_{r=1}^n |S_r| = |S_1| + |S_2| + \cdots + |S_n|$$

不幸的是，Behruzbek现在觉得困了。请帮助Behruzbek找到这棵树的可爱之处！

* 树是无环连通图。

† 有根树是这样一种树，其中一个顶点是特殊的，称为根。

Input

The first line contains the number of test cases t ($1 \leq t \leq 10^4$).

The first line of each test case contains two integers n and k ($2 \leq k \leq n \leq 2 \cdot 10^5$) — the number of vertices in the tree and the number of distinct integers to be chosen.

Codeforces Round 1062 (Div. 4)

比赛进行中

01:46:19

Contestant



→ 提交?

语言:

选择文件: 未选择文件

The following $n - 1$ lines of each test case describe the tree. Each of the lines contains two integers u and v ($1 \leq u, v \leq n, u \neq v$) that indicate an edge between vertex u and v . It is guaranteed that these edges form a tree.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

有道 翻译



输入 ***

第一行包含测试用例的个数 t ($1 \leq t \leq 10^4$)。

每个测试用例的第一行包含两个整数 n 和 k ($2 \leq k \leq n \leq 2 \cdot 10^5$) ——树中顶点的数量和要选择的不同整数的数量。

下面每个测试用例的 $n - 1$ 行描述了树。每一行包含两个整数 u 和 v ($1 \leq u, v \leq n, u \neq v$), 表示在顶点 u 和 v 之间有一条边。可以保证这些边形成一棵树。

保证所有测试用例 n 的和不超过 $2 \cdot 10^5$ 。



Output

For each test case, output one integer — the value of $\sum_{r=1}^n |S_r|$.

有道 翻译



*** 输出

对于每个测试用例，输出一个整数——值 $\sum_{r=1}^n |S_r|$ 。

Example

input



```
4
2 2
1 2
5 3
1 2
1 3
1 4
1 5
6 3
1 2
1 3
2 4
2 5
3 6
10 5
5 6
4 9
3 9
2 6
2 8
8 9
6 10
1 6
4 7
```

output



```
2
9
17
35
```



Note

For the third example:

- Root is 1, only 1 and 2 nodes can be obtained. For example, we can choose:
 $LCA(4, 5, 6) = 1$ and $LCA(2, 4, 5) = 2$. As a result, $f(1) = 2$.
- Root is 2, only 1 and 2 nodes can be obtained. For example, we can choose:
 $LCA(1, 3, 6) = 1$ and $LCA(1, 4, 5) = 2$. As a result, $f(2) = 2$.
- Root is 3, $f(3) = 3$. For example, node 3 can be obtained by choosing:
 $LCA(2, 4, 6) = 3$.

- Root is 4, $f(4) = 3$. For example, node 2 can be obtained by choosing:
 $LCA(1, 3, 5) = 2$.
- Root is 5, $f(5) = 3$. For example, node 2 can be obtained by choosing:
 $LCA(3, 4, 6) = 2$.
- Root is 6, $f(6) = 4$. For example, node 3 can be obtained by choosing:
 $LCA(3, 4, 5) = 2$.

Overall, $2 + 2 + 3 + 3 + 3 + 4 = 17$.

有道翻译



注意

对于第三个例子：

—Root节点为 1，只能获取到 1 和 2 节点。例如，可以选择： $LCA(4, 5, 6) = 1$ 和 $LCA(2, 4, 5) = 2$ 。因此， $f(1) = 2$ 。

—根节点为 2，只能获取到 1 和 2 节点。例如，我们可以选择 $LCA(1, 3, 6) = 1$ 和 $LCA(1, 4, 5) = 2$ 。因此， $f(2) = 2$ 。

—根节点为 3， $f(3) = 3$ 。例如，节点 3 可以通过选择： $LCA(2, 4, 6) = 3$ 获得。

—根节点为 4， $f(4) = 3$ 。例如，节点 2 可以通过选择： $LCA(1, 3, 5) = 2$ 获得。

—根节点为 5， $f(5) = 3$ 。例如，选择 $LCA(3, 4, 6) = 2$ 获取节点 2。

—根节点为 6， $f(6) = 4$ 。例如，节点 3 可通过选择： $LCA(3, 4, 5) = 2$ 获得。

总的来说， $2 + 2 + 3 + 3 + 3 + 4 = 17$ 。

GNU G++17 7.3.0



1

▶ 自定义测试数据(自动保存)





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