

2445. Number of Nodes With Value One

Description

There is an **undirected** connected tree with n nodes labeled from 1 to n and $n - 1$ edges. You are given the integer n . The parent node of a node with a label v is the node with the label $\text{floor}(v / 2)$. The root of the tree is the node with the label 1 .

- For example, if $n = 7$, then the node with the label 3 has the node with the label $\text{floor}(3 / 2) = 1$ as its parent, and the node with the label 7 has the node with the label $\text{floor}(7 / 2) = 3$ as its parent.

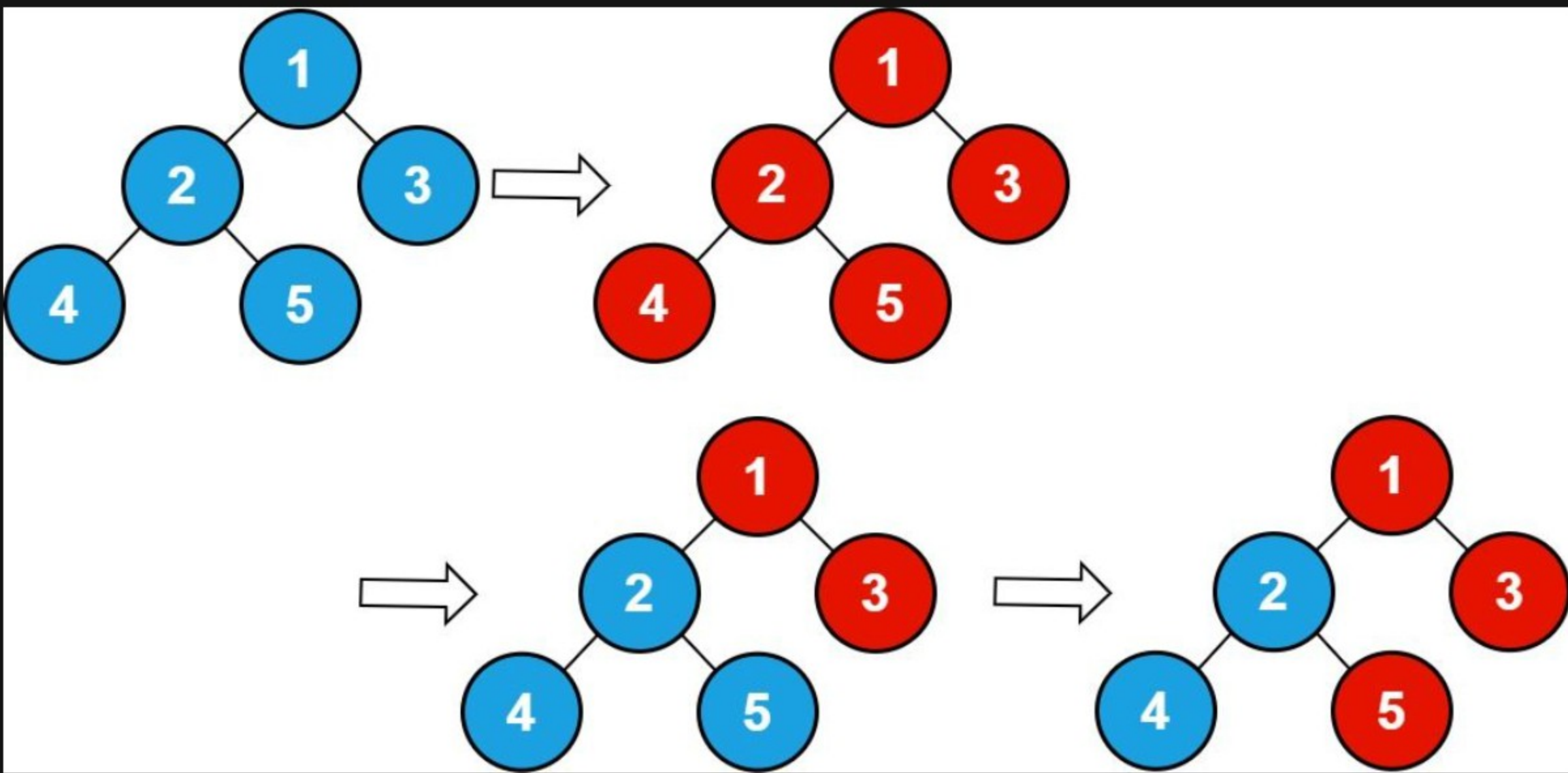
You are also given an integer array `queries`. Initially, every node has a value 0 on it. For each query `queries[i]`, you should flip all values in the subtree of the node with the label `queries[i]`.

Return *the total number of nodes with the value 1 after processing all the queries*.

Note that:

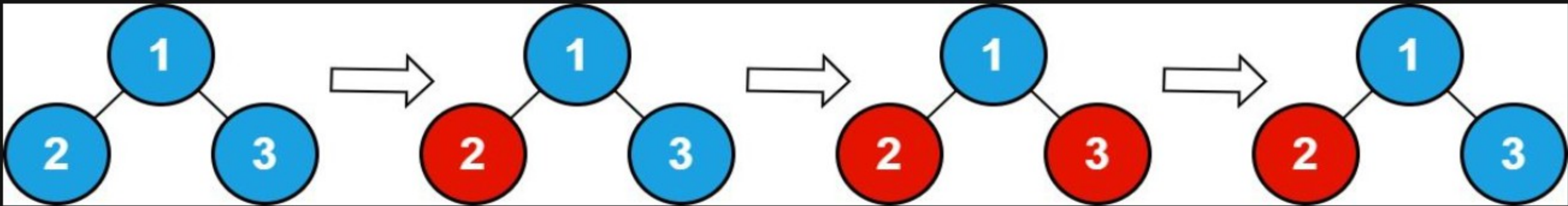
- Flipping the value of a node means that the node with the value 0 becomes 1 and vice versa.
- `floor(x)` is equivalent to rounding `x` down to the nearest integer.

Example 1:



Input: `n = 5 , queries = [1,2,5]`
Output: `3`
Explanation: The diagram above shows the tree structure and its status after performing the queries. The blue node represents the value 0 , and the red node represents the value 1 . After processing the queries, there are three red nodes (nodes with value 1): 1 , 3 , and 5 .

Example 2:



Input: `n = 3, queries = [2,3,3]`
Output: `1`
Explanation: The diagram above shows the tree structure and its status after performing the queries. The blue node represents the value 0 , and the red node represents the value 1 . After processing the queries, there are one red node (node with value 1): 2 .

Constraints:

- $1 \leq n \leq 10^5$
- $1 \leq \text{queries.length} \leq 10^5$
- $1 \leq \text{queries}[i] \leq n$

