Density Of A Tree

Given a Tree of **N** nodes numbered from 0 to N-1 rooted at **0th** node, Find density of it upto exactly six decimal places.
Density of the Tree = Size of the tree / Height of the tree.
You are given array **par[ ]** where **par[i]** is the parent of **ith** node. As **0th** node is the root, so **par[0] = -1**.

Example 1:

```
Input:
N = 3
par[] = {-1, 0, 0}
Output:
1.500000
Explanation:
Given tree:
            0
          /   \
         1     2
Size of the tree = 3
Height of the tree = 2
Density of the tree = 3/2 = 1.5
```

Example 2:

```
Input:
N = 2
par[] = {-1, 0}
Output:
1.000000
Explanation:
Given tree:
            0
            |
            1
Size of the tree = 2
Height of the tree = 2
Density of the tree = 2/2 = 1
```

Your Task:
You don't need to read input or print anything. Your task is to complete the function **density( )** which takes number of nodes **N** and array **par[ ]** as input parameters and returns the density of the tree upto six decimal places.

Constraints:
$1 \le N \le 2*10^5$
par[0] = -1
$0 \le par[i] < N$ and $0 < i < N$