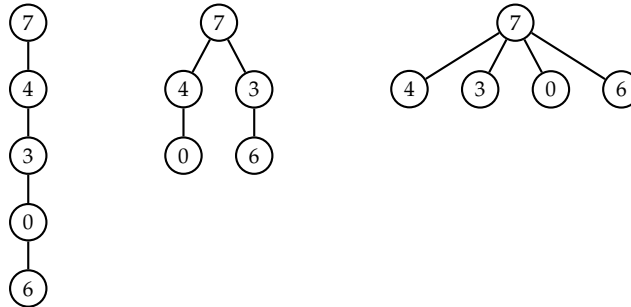


Flattened trees

P19515_en

Given a general tree, being s its size (its number of elements), and being h its height. The quotient s/h is a measure of how much “flattened” is the tree.

For instance, the tree on the left has quotient $5/5 = 1$, the one on the middle has quotient $5/3 \simeq 1'667$, while the one on the right has quotient $5/2 = 2'5$.



Write a program that reads the shape of various general trees, and for each one prints the maximal quotient s/h of all its subtrees.

Input

Input starts with m , the number of trees that must be treated. The description of the m trees follow as is explained at the exercise, with two exceptions: The values are not given, because the content of the nodes here is not important. The number of nodes is neither given, because you do not need to store the trees in any vector to solve this exercise.

Output

Your program must print with three figures the maximal quotient s/h of the subtrees of each given tree.

Sample input

```
3
3 2 0 1 1 0 0 4 0 0 0 0
2 1 0 0
2 0 0
```

Sample output

```
2.500
1.333
1.500
```

Problem information

Author : Salvador Roura
 Translator : Carlos Molina
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