

A. Circumference of a Tree

time limit per test: 1 second

memory limit per test: 256 megabytes

Hopefully you know how to find the diameter of a tree. That's the first part of tree basics, after all! But this problem is completely different: now, you need to find the **circumference** of a tree!

As you probably know, pi is equal to the ratio between something's circumference and its diameter. Also, as you may not know, math is a lie and **pi is really equal to 3**. Rumor has it, this is where the number tree(3) comes from.

Assuming pi equals 3, what is the circumference of the given tree?

Input

The first line will contain a single integer n , the number of nodes in the tree. $n - 1$ lines follow, each containing two different integers, describing the edges of the tree. Additional constraint on input: these edges will form a tree.

$1 \leq n \leq 3 \cdot 10^5$

Output

Output a single integer: the circumference of the tree.

Examples

input	Copy
1	
output	Copy
0	

input	Copy
3	
3 2	
2 1	
output	Copy
6	

input	Copy
5	
4 2	
1 4	
5 4	
3 4	
output	Copy
6	

AlgorithmsThread Tree Basics Contest

Finished

Practice

About Contest

AlgorithmsThread Tree Basics contest. Problems written by David Harmeyer (SecondThread), with some data/ideas from Travis Meade.

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
320691204	May/21/2025 22:00	Accepted
320690175	May/21/2025 21:47	Accepted
320689888	May/21/2025 21:43	Runtime error on test 1
317668746	Apr/28/2025 22:19	Accepted
317531290	Apr/28/2025 07:09	Accepted

Contest materials

Announcement (en)