



HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

# C. Move Brackets

time limit per test: 1 second memory limit per test: 256 megabytes input: standard input output: standard output

You are given a bracket sequence s of length n, where n is even (divisible by two). The string s consists of  $\frac{n}{2}$  opening brackets '(' and  $\frac{n}{2}$  closing brackets ')'.

In one move, you can choose **exactly one bracket** and move it to the beginning of the string or to the end of the string (i.e. you choose some index i, remove the i-th character of s and insert it before or after all remaining characters of s).

Your task is to find the minimum number of moves required to obtain **regular bracket sequence** from s. It can be proved that the answer always exists under the given constraints.

Recall what the regular bracket sequence is:

- "()" is regular bracket sequence;
- $\bullet$  if s is regular bracket sequence then "(" + s + ")" is regular bracket sequence;
- ullet if s and t are regular bracket sequences then s + t is regular bracket sequence.

For example, "()()", "(())()", "(())" and "()" are regular bracket sequences, but ")(", "()(" and ")))" are not.

You have to answer t independent test cases.

## Input

The first line of the input contains one integer t ( $1 \le t \le 2000$ ) — the number of test cases. Then t test cases follow.

The first line of the test case contains one integer n ( $2 \le n \le 50$ ) — the length of s. It is guaranteed that n is even. The second line of the test case containg the string s consisting of  $\frac{n}{2}$  opening and  $\frac{n}{2}$  closing brackets.

## Output

For each test case, print the answer — the minimum number of moves required to obtain **regular bracket sequence** from s. It can be proved that the answer always exists under the given constraints.

## Example

| input           | Сору |
|-----------------|------|
| 4 2             |      |
| )(4             |      |
| ()()            |      |
| ())()()()<br>10 |      |
| )))((((())      |      |
| output          | Сору |
| 1               |      |
| 0               |      |
| 3               |      |

## Codeforces Round #653 (Div. 3)

#### **Finished**

### → 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

## → Problem tags

| greedy | strings | *1000 |                    |
|--------|---------|-------|--------------------|
|        |         |       | No tag edit access |

#### → Contest materials

- Announcement
- Tutorial

# Note

In the first test case of the example, it is sufficient to move the first bracket to the end of the string.

In the third test case of the example, it is sufficient to move the last bracket to the beginning of the string.

In the fourth test case of the example, we can choose last three openning brackets, move them to the beginning of the string and obtain "((()))".

Codeforces (c) Copyright 2010-2021 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Mar/16/2021 22:53:00<sup>utc-5</sup> (f2).
Desktop version, switch to mobile version.
Privacy Policy

Supported by



