
Some parenthesizations

P31589_en

Vintè Concurs de Programació de la UPC - Semifinal (2021-06-15)

Given a natural number n , compute the number of correct parenthesizations with n opening and n closing parentheses, with just one restriction: the substring “) ()” is not allowed.

For instance, for $n = 4$ there are four correct parenthesizations: “(((()))”, “(((()))”, “(() ())” and “(((()))”.

Input

Input consists of several cases, each one with an n between 1 and 10^4 .

Output

For each n , print the result modulo $10^9 + 7$.

Sample input

```
4
1
2
3
5
10000
```

Sample output

```
4
1
1
2
9
681928184
```

Problem information

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