

---

## Some parenthesizations

**P31589\_en**

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 1**

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

**Sample output 1**

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

**Problem information**

Author: Xavier Povill

Generation: 2026-01-25T10:12:30.259Z

© Jutge.org, 2006–2026.

<https://jutge.org>