Problem Y: Two Sets

Problem Description

Your task is to count the number of ways numbers $1, 2, \ldots, n$ can be divided into two sets of equal sum. For example, if $n = 7$, there are four solutions:

- $\{1, 3, 4, 6\}$ and $\{2, 5, 7\}$
- $\{1, 2, 5, 6\}$ and $\{3, 4, 7\}$
- $\{1, 2, 4, 7\}$ and $\{3, 5, 6\}$
- $\{1, 6, 7\}$ and $\{2, 3, 4, 5\}$

Input

The only input line contains an integer n, where $1 \leq n \leq 500$.

Output

Print the answer modulo $10^9 + 7$.

Sample

Sample Input 1
7

Sample Output 1
4

Sample Input 2
10

Sample Output 2
0