

Problem I. Julienne the Deck

Input file: `standard input`
Output file: `standard output`
Time limit: 1 second
Memory limit: 256 megabytes

Daniel is trying to shuffle his deck of n distinct cards. To do this, he has created a new shuffle operation which he calls ‘Juliencing’ the deck.

First he chooses an integer i , $1 \leq i < n$. He then simultaneously reverses the first i cards of the deck, and the last $n - i$ cards of the deck.

For example, if his deck is initially in the permutation $p = [1, 4, 3, 2, 5, 6]$, then after a Julienne operation with $i = 4$ his deck becomes $p' = [2, 3, 4, 1, 6, 5]$.

If Daniel starts with a sorted deck of n cards, how many permutations of his deck can he achieve using any number (possibly zero) of Julienne operations?

As the answer may be large, output the value modulo 998244353.

Input

The first line of input consists of single integer n ($1 \leq n \leq 10^{12}$) — the number of cards in the deck.

Output

Output a single integer — the number of achievable permutations, modulo 998244353.

Examples

standard input	standard output
1	1
1000000000000	516560941
3	6