Alice and Bob

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Alice and Bob are playing a game.

They are given a permutation p, and take turns to perform the following operation, with Alice going first:

- Operation: Rearrange $p_{1\cdots p_1}$ in any desired order.

If someone do two operations with the same p_1, he or she loses.

Alice and Bob are both strategically adept and will always choose the optimal operation to secure a win.

Given all permutations of size n, determine how many of them Bob will win, modulo 998244353.

Input

The first line of the input contains a single integer n ($1 \le n \le 10^7$).

Output

Output a single line contains a single integer, indicating the answer.

Examples

standard input	standard output
1	1
2	1
10	997920
100	188898954