Cactus

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

An undirected connected graph is called a cactus, if and only if each edge of it belongs to at most one simple cycle. A simple cycle is a cycle that has no repeated vertices.

Now suppose there are f_n cactuses of n distinct vertices, and the cactuses may have parallel edges and must not have self-loops, you need to calculate $\sum_{i=1}^{n} \prod_{j \neq i} \frac{1+f_i-f_i f_j}{f_i-f_j}$.

The sum of a zero-length sequence is 0, and the product of a zero-length sequence is 1.

Input

A single line contains an integer n ($1 \leq n \leq 3 \times 10^5$).

Output

Suppose the reduced form of the answer is $\frac{x}{y}$, and you only need to output the value of $x \times y^{998244351}$ mod 998244353.

Example

standard input	standard output
2	1

Note

In the first example, $f_1 = 1, f_2 = 2$, and the answer is 1.