D. Permutation Sum

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Permutation *p is an ordered set of integers $p_1, p_2, ..., p_n$, consisting of n distinct positive integers, each of them doesn't exceed n. We'll denote thei-th element of permutation p as p_i. We'll call number n the size or the length of permutation $p_1, p_2, ..., p_n$.*

Petya decided to introduce the sum operation on the set of permutations of length n. Let's assume that we are given two permutations of length n: $a_1, a_2, ..., a_n$ and $b_1, b_2, ..., b_n$. Petya calls the sum of permutations a and b such permutation c of length n, where $c_i = ((a_i - 1 + b_i - 1) \bmod n) + 1 \ (1 \le i \le n)$.

Operation means taking the remainder after dividing number x by number y.

Obviously, not for all permutations a and b exists permutation c that is sum of a and b. That's why Petya got sad and asked you to do the following: given n, count the number of such pairs of permutations a and b of length n, that exists permutation c that is sum of a and b. The pair of permutations $x, y \ (x \ne y)$ and the pair of permutations y, x are considered distinct pairs.

As the answer can be rather large, print the remainder after dividing it by $1000000007 \ (10^9 + 7)$.

Input

The single line contains integer $n \ (1 \le n \le 16)$.

Output

In the single line print a single non-negative integer — the number of such pairs of permutations a and b, that exists permutation c that is sum of a and b, modulo $1000000007 \ (10^9 + 7)$.

Examples

input
3
output
18

input
5
output
1800