

# E. Positions in Permutations

time limit per test: 2 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

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

We'll call position  $i$  ( $1 \leq i \leq n$ ) in permutation  $p_1, p_2, \dots, p_n$  *good*, if  $|p[i] - i| = 1$ . Count the number of permutations of size  $n$  with exactly  $k$  good positions. Print the answer modulo 1000000007 ( $10^9 + 7$ ).

## Input

The single line contains two space-separated integers  $n$  and  $k$  ( $1 \leq n \leq 1000, 0 \leq k \leq n$ ).

## Output

Print the number of permutations of length  $n$  with exactly  $k$  good positions modulo 1000000007 ( $10^9 + 7$ ).

## Examples

input
1 0
output
1

input
2 1
output
0

input
3 2
output
4

input
4 1
output
6

input
7 4
output
328

## Note

The only permutation of size 1 has 0 good positions.

Permutation (1, 2) has 0 good positions, and permutation (2, 1) has 2 positions.

Permutations of size 3:

1.  $(1, 2, 3)$  — 0 positions
2. — 2 positions
3. — 2 positions
4. — 2 positions
5. — 2 positions
6.  $(3, 2, 1)$  — 0 positions