N Aces

Time Limit: 2 Second
Memory Limit: 2048 MB

LetianPie just invented a new piece in chess! He named his new piece as "ace" (corresponding to Ace in poker). The rule of ace is quite simple: it can move one step to one of the four adjacent cells (i.e. it is a King that cannot move diagonally). As a computer science student, LetianPie wants to know if he can apply the same technique he learned to solve the N Queens problem to solve N Aces problem.

Specifically, given an $n \times m$ chessboard, he wants to calculate the number of ways to place aces such that no pair of aces can attack each other. Two placements are different if exists at least one cell such that the cell is occupied in one placement and unoccupied in the other placement. However, since he is quite busy with his projects, he asks you for help.

Input

The only line of input contains two integers n and m ($1 \leq nm \leq 500$), as described in the problem statement.

Output

Output a single number denoting the number of ways to place aces on the $n \times m$ chessboard such that no pair of aces can attack each other. Since the number can be very large, output the value modulo $10^9 + 7$.

Sample Inputs	Sample Outputs
3 3	63