

@LeetCode

There is an m by n grid with a ball. Given the start coordinate (i,j) of the ball, you can move the ball to **adjacent** cell or cross the grid boundary in four directions (up, down, left, right). However, you can **at most** move N times. Find out the number of paths to move the ball out of grid boundary. The answer may be very large, return it after mod $10^9 + 7$.

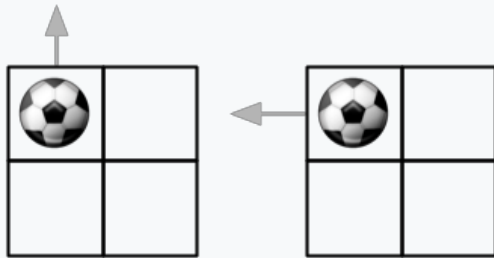
Example 1:

Input: $m = 2, n = 2, N = 2, i = 0, j = 0$

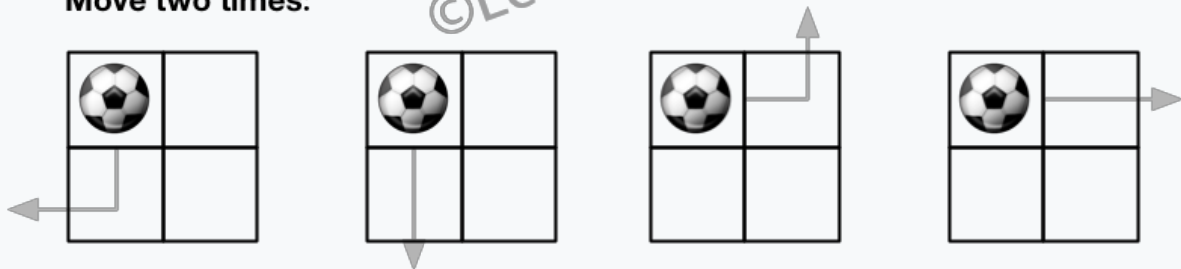
Output: 6

Explanation:

Move one time:



Move two times:



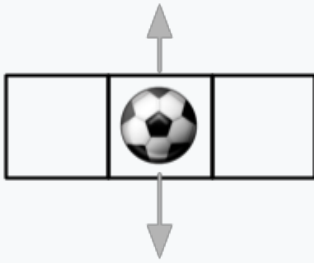
Example 2:

Input: $m = 1, n = 3, N = 3, i = 0, j = 1$

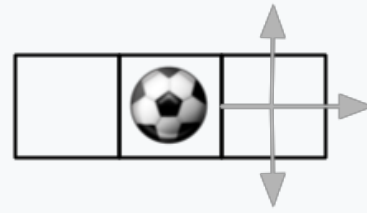
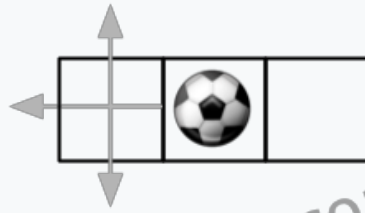
Output: 12

Explanation:

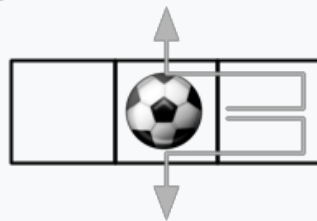
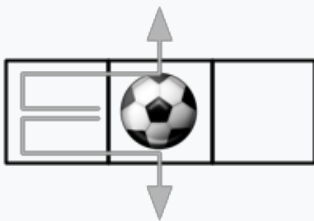
Move one time:



Move two times:



Move three times:



Note:

1. Once you move the ball out of boundary, you cannot move it back.
2. The length and height of the grid is in range $[1,50]$.
3. N is in range $[0,50]$.