

1269. Number of Ways to Stay in the Same Place After Some Steps

Description

You have a pointer at index `0` in an array of size `arrLen`. At each step, you can move 1 position to the left, 1 position to the right in the array, or stay in the same place (The pointer should not be placed outside the array at any time).

Given two integers `steps` and `arrLen`, return the number of ways such that your pointer is still at index `0` after **exactly** `steps` steps. Since the answer may be too large, return it **modulo** `$10^9 + 7$` .

Example 1:

Input: `steps = 3, arrLen = 2`

Output: `4`

Explanation: There are 4 different ways to stay at index 0 after 3 steps.

Right, Left, Stay

Stay, Right, Left

Right, Stay, Left

Stay, Stay, Stay

Example 2:

Input: `steps = 2, arrLen = 4`

Output: `2`

Explanation: There are 2 different ways to stay at index 0 after 2 steps

Right, Left

Stay, Stay

Example 3:

Input: `steps = 4, arrLen = 2`

Output: `8`

Constraints:

- `$1 \leq \text{steps} \leq 500$`
- `$1 \leq \text{arrLen} \leq 10^6$`

