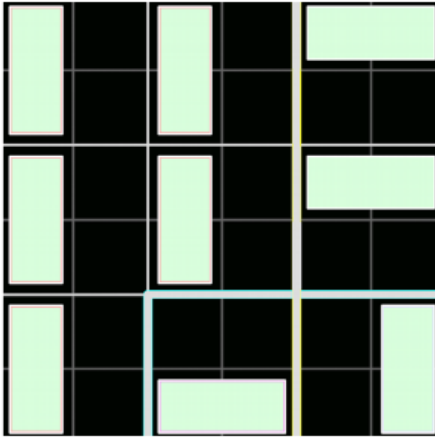


13201 Sparse Domino Tiling

A domino is a 1×2 or 2×1 Tile. Determine in how many ways exactly N^2 dominoes can be placed without overlapping on an $(2M) \times (2N)$ chessboard, such that every 2×2 square contains at least two uncovered unit squares which lie in the same row or column. One possible tiling is shown below:



Input

A number of inputs (≤ 1000), with space separated integers N, M ($1 \leq M, N \leq 1000000$), each on one line.

Output

Output one line per input, the answer *modulo* 1000000007.

Sample Input

```
1 1
2 2
```

Sample Output

```
4
36
```