

DOJO Corridor II

There's a $5 \times N$ rectangular corridor in the hall's dojo, one place is already taken by a magic hanjō (1×1 square). You have to put tatamis (1×2 rectangle) in order to cover exactly the rest of the corridor. Sometimes it's possible, sometimes not!

Input

The input begins with the number T of test cases in a single line. In each of the next T lines there are an integer N the H-length of the corridor, and I, J the coordinates of the magic hanjō. See sample input for details format.

Output

For each test case, print the number of possibility to do the job, modulo 1000000007.

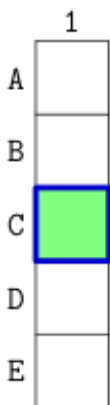
Example

Input:

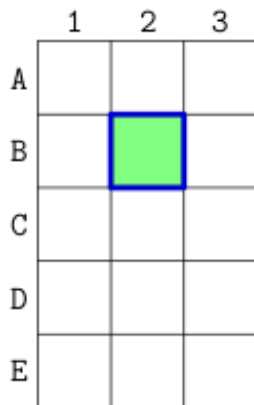
```
3
1 C 1
3 B 2
5 A 1
```

Output:

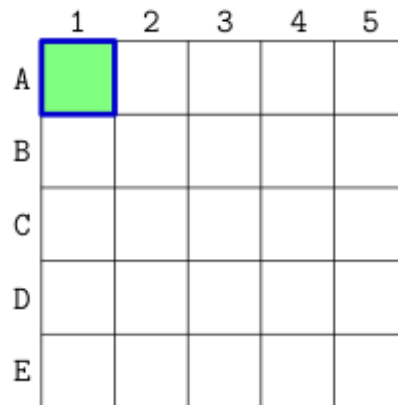
```
1
8
192
```



Test case #1
1 C 1



Test case #2
3 B 2



Test case #3
5 A 1

Constraints

$1 \leq T \leq 40\,000$

$1 \leq N \leq 20\,000$

$A \leq I \leq E$

$1 \leq J \leq N$

Uniform, independent, random input in the range. Input had been 'filtered' to let only possible configurations.

You may try too : [Grid Tiling](#), or [Blocks for kids](#)

Edit(19/1/2015, after cluster switch) : now my old code ends in 0.23s using PY3.4.P