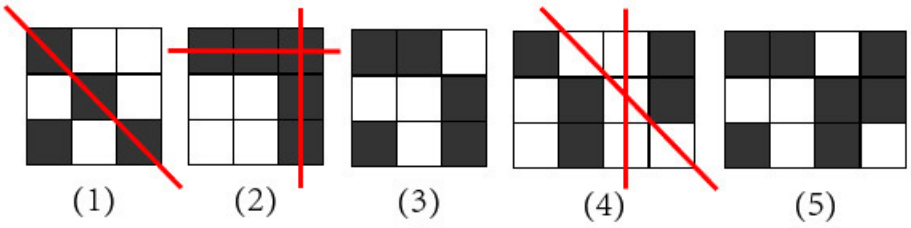
Grid Coloring

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Bob likes coloring in grids. Today he wants to color every cell in a $n \cdot m$ grid black or white. Bob thinks a coloring way is beautiful if there are no three consecutive cells of the same color in horizontal, vertical, or diagonal directions. Here are some examples to help you understand.



(1), (2), (4) are not beautiful, and (3), (5) are beautiful.

Now here comes the question: given n and m, can you tell Bob how many beautiful coloring ways are there? Let x be the answer, you just need to output $x \bmod 1\,000\,000\,007$.

Input

The first line of the input contains an integer T ($1 \leq T \leq 20$), denoting the number of queries.

Each of the following T lines contains two integers n, m ($1 \leq n, m \leq 10^9$), representing a query.

Output

For each query, output the answer in a single line.

Example

standard input	standard output
6 1 1 2 2 2 3 3 3 3 4 4 4	2 16 36 32 44 18