



Ones and Twos



Problem

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You are using at most **A** number of 1s and at most **B** number of 2s. How many different evaluation results are possible when they are formed in an expression containing only addition **+** sign and multiplication ***** sign are allowed?

Note that, multiplication takes precedence over addition.

For example, if **A=2** and **B=2**, then we have the following expressions:

- 1, $1*1 = 1$
- 2, $1*2$, $1*1*2$, $1+1 = 2$
- $1+2$, $1+1*2 = 3$
- $2+2$, $2*2$, $1+1+2$, $1*2*2$, $1*1*2*2$, $1*2+1*2$, $1*1*2+2$, $1*2+2 = 4$
- $1+2+2$, $1+1*2+2 = 5$
- $1+1+2+2$, $1+1+2*2 = 6$

So there are 6 unique results that can be formed if $A = 2$ and $B = 2$.

Input Format

The first line contains the number of test cases T , T testcases follow each in a newline.
Each testcase contains 2 integers A and B separated by a single space.

Constraints

$1 \leq T \leq 10^5$
 $0 \leq A \leq 1000000000$
 $0 \leq B \leq 1000$

Output Format

Print the number of different evaluations modulo (%) (10^9+7) .

Sample Input

```
4
0 0
2 2
0 2
2 0
```

Sample Output

```
0
6
2
2
```

Explanation

- When $A = 0, B = 0$, there are no expressions, hence 0.
- When $A = 2, B = 2$, as explained in the problem statement above, expressions leads to 6 possible solutions.
- When $A = 0, B = 2$, we have 2, $2+2$ or $2*2$, hence 2.
- When $A = 2, B = 0$, we have 1 or $1*1$, $1+1$ hence 2.



[f](#) [t](#) [in](#)Submissions: [237](#)

Max Score: 100

Difficulty: Hard

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☆☆☆☆☆

[More](#)Current Buffer (saved locally, editable)  Java 7 

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

 [Upload Code as File](#)☐ Test against custom input

Run Code

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