

# Sum of Tetranacci numbers

The sequence of Tetranacci numbers is defined as follows:

$a_n = a_{n-1} + a_{n-2} + a_{n-3} + a_{n-4}$  with  $a_0 = a_1 = a_2 = 0$  and  $a_3 = 1$ .

## Input

Input starts with a positive integer  $t \leq 4000$ , then  $t$  lines follow. Each of the  $t$  lines contains two space separated integers  $m$  and  $n$  with  $0 \leq m \leq n \leq 10^9$ .

## Output

Calculate  $a_m + a_{m+1} + \dots + a_n$  and print the result modulo 1000000007.

## Example

**Input:**

2

1 2

1919 5393

**Output:**

0

66616

**Note:** If your solution times out, you may try the [tutorial version](#) first.