

Fibonacci Sum

The fibonacci sequence is defined by the following relation:

- $F(0) = 0$
- $F(1) = 1$
- $F(N) = F(N - 1) + F(N - 2), N \geq 2$

Your task is very simple. Given two non-negative integers N and M , you have to calculate the sum $(F(N) + F(N + 1) + \dots + F(M)) \bmod 1000000007$.

Input

The first line contains an integer T (the number of test cases). Then, T lines follow. Each test case consists of a single line with two non-negative integers N and M .

Output

For each test case you have to output a single line containing the answer for the task.

Example

Input:

```
3
0 3
3 5
10 19
```

Output:

```
4
10
10857
```

Constraints

- $T \leq 1000$
- $0 \leq N \leq M \leq 10^9$