



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

B. Fibonaccharsis

time limit per test: 2 seconds memory limit per test: 256 megabytes

Ntarsis has received two integers n and k for his birthday. He wonders how many fibonacci-like sequences of length k can be formed with n as the k-th element of the sequence.

A sequence of **non-decreasing non-negative** integers is considered fibonacci-like if $f_i = f_{i-1} + f_{i-2}$ for all i > 2, where f_i denotes the i-th element in the sequence. Note that f_1 and f_2 can be arbitrary.

For example, sequences such as [4,5,9,14] and [0,1,1] are considered fibonacci-like sequences, while [0,0,0,1,1], [1,2,1,3], and [-1,-1,-2] are not: the first two do not always satisfy $f_i=f_{i-1}+f_{i-2}$, the latter does not satisfy that the elements are non-negative.

Impress Ntarsis by helping him with this task.

Input

The first line contains an integer t ($1 \le t \le 2 \cdot 10^5$), the number of test cases. The description of each test case is as follows.

Each test case contains two integers, n and k ($1 \le n \le 2 \cdot 10^5$, $3 \le k \le 10^9$).

It is guaranteed the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case output an integer, the number of fibonacci-like sequences of length k such that the k-th element in the sequence is n. That is, output the number of sequences f of length k so f is a fibonacci-like sequence and $f_k = n$. It can be shown this number is finite.

Example

input	Сору	
8		
22 4		
3 9		
55 11		
42069 6		
69420 4		
69 1434		
1 3		
1 4		
output	Сору	
4		
0		
1		
1052		
11571		
0		
1		
0		

Note

There are 4 valid fibonacci-like sequences for $n=22,\,k=4$:

- [6, 8, 14, 22],
- [4, 9, 13, 22]
- [2, 10, 12, 22]
- [0, 11, 11, 22]

For n=3, k=9, it can be shown that there are no fibonacci-like sequences satisfying the given conditions.

For n=55, k=11, [0,1,1,2,3,5,8,13,21,34,55] is the only fibonacci-like sequence.

Codeforces Round 887 (Div. 2) Finished Practice

B

→ Virtual participation

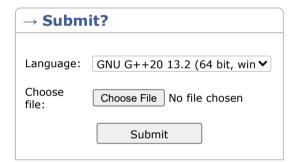
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Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest



ightarrow Last submissions		
Submission	Time	Verdict
269819397	Jul/11/2024 07:23	Accepted
269819218	Jul/11/2024 07:21	Accepted
269819162	Jul/11/2024 07:20	Accepted
269818843	Jul/11/2024 07:16	Accepted
<u>269818675</u>	Jul/11/2024 07:14	Accepted
<u>269783574</u>	Jul/10/2024 22:28	Accepted
269755577	Jul/10/2024 18:39	Accepted
<u>269755131</u>	Jul/10/2024 18:36	Accepted
<u>269754946</u>	Jul/10/2024 18:35	Accepted
<u>269752665</u>	Jul/10/2024 18:18	Accepted



