Divisible Fibonacci Numbers

The Fibonacci sequence is defined by : $f_n = n$ for $n < 2$, and $f_n = f_{n-1} + f_{n-2}$ for $n > 1$.
$f = (0, 1, 1, 2, 3, 5, 8, ...)$
You have to count how many terms are divisible by a given integer in the beginning of the sequence.

Input

The first line of input contains one integer: T the number of test cases.
On each of the next T lines, your are given three integers: a, b, and k.

Output

For each test case, you have to print the number of term f_n that are divisible by k, for n in $[0..a^b]$.
As the result may be a big number, simply output your result modulo 10^9+7

Example

Input:
3
3 2 3
2 3 8
9 1 6

Output:
3
2
1

Explanation: For the first case, $a^b = 3^2 = 9$, and the terms with rank 0 to 9 are : **0**, 1, 1, 2, **3**, 5, 8, 13, **21**, 34.
There are **3** numbers divisible by k=3.

Constraints

0 < T < 10^4
0 < a < 10^18
0 < b < 10^18
1 < k < 10^18

To give more interest in the best part of the problem, you can assume that the maximum prime factor of k is less than or equal to 10^6.
Time limit is approx 4x the time for my 1.4kB PY3.4 submission (based on my old code for problem ??? you should find).
Good luck, and have fun ;-)

Edit(2017-02-11) : New time limit (after compiler changes).