Farmer Crisis

Assignment 2
Computer Programming
Due date: TBA

Problem Statement: Meghalaya is a NE State of India. Farmers there are quite poor as the living cost is high in hilly areas.
There is a rich guy named Shukla Ji who has hired N farmers who are equal in their working capacity, i.e., each farmer can plough 1 unit of land in 1 unit time. Meghalaya, being hilly region fields are broken up as M parts rather than being contiguous.
Deshmukh Ji, a neighbour, wants to test Shukla Ji's intelligence. He wants to know what is the minimum time in which those N farmers can plough the fields.
Since Shukla Ji is busy working for Felicity, can you do that for him?

Note: Farmers are quite egoistical, so they would not share the field they are ploughing with other farmer and each farmer would only plough contiguous fields.
You will be given 3 numbers a, b,and mod from which you can generate the area of the field using the formula:
F[1] = 1
F[2] = 2
F[i] = (F[i-1] * a + a * b + F[i-2] * b) % mod + b
where, $F[i]$ is the i^{th} field

Constraints:
$1 \leq T \leq 10^3$
$2 \leq N \leq 10^3$
$1 \leq M \leq 10^3$
$1 \leq a, b \leq 10^3$
$2 \leq mod \leq 10^5$

INPUT: T is the number of test cases in the first line. T lines following them will contain 5 space separated integers. N, M, a, b, mod as space separated integers.
OUTPUT: Single integer which denotes minimum time required for each test case.

Time Limit: 1 sec
Memory Limit: 256 MB

Sample Test Case

Input	Output
3 2 2 3 2 100000 1 2 3 2 100000 4 5 3 2 100000	2 3 220

Explanation

Case#1: 2 fileds are there of area: 1, 2 and two farmers are hired. Each farmer will work concurrently on one field. Hence the minimum time required is 2.
Case#2: 2 fields are there of area: 1, 2 but there is only one hired farmer. So he works on first field and then moves on to another. Hence the total time required is 3.