Problem F. Longest Common Subsequence

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	256 mebibytes

Given a sequence s of length n and a sequence t of length m, find the length of the longest common subsequence of s and t.

Input

There are multiple test cases. The first line of input contains an integer T ($1 \leq T \leq 10^3$), the number of test cases.

For each test case:

The only line contains seven integers: n, m, p, x, a, b, and c ($1 \leq n, m \leq 10^6$, $0 \leq x, a, b, c < p \leq 10^9$). Here, n is the length of s, and m is the length of t.

To avoid large input, you should generate the sequences as follows:

For each $i = 1, 2, \ldots, n$ in order, update x to $(ax^2 + bx + c) \bmod p$, and then set s_i to x. And then, for each $i = 1, 2, \ldots, m$ in order, update x to $(ax^2 + bx + c) \bmod p$, and then set t_i to x.

It is guaranteed that both the sum of n and the sum of m over all test cases do not exceed 10^6.

Output

For each test case:

Output a single line with a single integer: the length of the longest common subsequence of s and t.

Example

standard input	standard output
2	0
4 3 1024 1 1 1 1	3
3 4 1024 0 0 0 0	

Note

In the first sample, $s = [3, 13, 183, 905]$ and $t = [731, 565, 303]$.

In the second sample, $s = [0, 0, 0]$ and $t = [0, 0, 0, 0]$.