Long Lines

Time limit: *5000 ms*
Memory limit: *256 MB*

When standing in a line, some people are more noticeable than others, and height has a lot to do with it. For this problem, we define a person i as noticeable to person j if and only if:

- Person i is standing in front of person j in line, and
- There are no people standing between person i and j that are as tall or taller than person i.

Given the heights of people in line, and these definitions, you are to count how many times people are noticeable in a line.

Standard Input

Input consists of 5 space-separated integers, n, h_0, a, c, and q. n is the number of people in the line, and the other values are used in the formula below.

To find the heights of people in the line, you should apply the following formula:

$h_i = (a \times h_{i-1} + c) \bmod q$, for $1 \leq i < n$

The person with height h_0 is standing at the front of the line, the person with height h_1 is second in line, the person with height h_2 is third in line, and so on.

Standard Output

Output the sum of the number of people who are noticeable in the line.

Constraints and notes

- $1 \leq n \leq 10^7$
- $1 \leq h_0 < q \leq 10^9$
- $1 \leq a < q$
- $1 \leq c < q$

Input	Output	Explanation
`5 2012 37 31 2573`	`5`	The heights of the people in line are: A : 2012, B : 2431, C : 2496, D : 2328, E : 1258 Because there is no one standing in front of A, the person at the front of the line, no one is noticeable to A. B notices A. C notices B, but does not notice A, since B has a height that is greater than or equal to A's height. D notices C, but not B or A, since C is taller than both B and A. E notices both D and C, but not A or B, since C is taller than A and B.