

## Problem B. Best Division

Input file: *standard input*  
Output file: *standard output*  
Time limit: 1 second  
Memory limit: 256 mebibytes

You are given an array  $A$  consisting of  $N$  integers.

You are also given two integers  $K$  and  $L$ .

You must divide the whole array  $A$  into exactly  $K$  nonempty intervals so that the length of each interval is not greater than  $L$ .

The cost of an interval  $[S, E]$  is the bitwise XOR sum of all elements of  $A$  whose indices are in  $[S, E]$ .

The score of a division is simply the maximum of the costs of all  $K$  intervals in the division. You are interested in the best division: the one which minimizes the score of the division. Since this would be too simple for you, the problem is reversed.

You know the minimum score: the answer for the original problem is not greater than  $X$ . Now you want to know the maximum value of  $K$ .

### Input

The first line of input contains three integers  $N$ ,  $X$  and  $L$  which are described above ( $1 \leq L \leq N \leq 10^5$ ,  $0 \leq X < 268\,435\,456$ ).

The next line contains three integers  $A_1$ ,  $P$  and  $Q$  ( $0 \leq A_1, P, Q < 268\,435\,456$ ). All subsequent integers of the array  $A$  are generated using these three integers in the following way: for every integer  $1 < k \leq N$ ,  $A_k = (A_{k-1} \cdot P + Q) \bmod 268\,435\,456$ .

### Output

Print a single line containing the answer. If the answer does not exist, just print 0.

### Examples

standard input	standard output
3 1 2 1 1 1	2
3 0 3 1 1 1	1