K-th Ordered Statistic

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K-th ordered statistic

2.0 points possible (graded)

Input file:	kth.in
Output file:	kth.out
Time limit:	2 seconds
Memory limit:	256 megabytes

You are given a sequence of n integers. Which of these numbers are k_1-th, (k_1 + 1)-th, ..., k_2-th in the sorted order in this sequence?

Input
In the first line of the input file there are three integers: n, the sequence size, and k_1 and k_2, the interesting interval boundaries. ($2 \le n \le 4 \cdot 10^7$, $1 \le k_1 \le k_2 \le n$, $k_2 - k_1 < 200$).

The second line of the input file contains integers A, B, C, a_1, a_2, which do not exceed 10^9 by the absolute value. You have to generate the input sequence elements, starting with the third one, using the following expression: $a_i = A \cdot a_{i-2} + B \cdot a_{i-1} + C$. All computations should be performed in a 32-bit integer type, all overflows should be ignored.

Please pay attention that an array of $4 \cdot 10^7$ 32-bit integers takes 160 megabytes of memory!

This problem is (nearly) **impossible to solve in Python and PyPy**, and the main problem is the input sequence generation. To keep yourself sane, please **consider using other languages**!

Output
In the first and only line of the output file print the k_1-th, (k_1 + 1)-th, ..., k_2-th in the sorted order numbers from the sequence a. Separate the numbers by single white spaces.

Examples

kth.in	kth.out
5 3 4 2 3 5 1 2	13 48
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5 3 4 200000 300000 5 1 2	2 800005
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In the second example, the sequence a is: (1, 2, 800005, −516268571, 1331571109).

Choose Files No file chosen

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