Problem K. Top K Elements

Input file:	stdin
Output file:	stdout
Time limit:	2 seconds
Memory limit:	8 megabytes

Alexey is attending the "Algorithms and Data Structures" course at his university. He has already learned quite a few interesting algorithms and has recently got a new task for his homework.

Given a large array of n elements, he has to find out the k largest of them.

"Sounds very simple!" — Alexey wondered and immediately started working on it.

5 minutes, 10, 15... and at last, the algorithm is written.

Tests are run...

"Oh... Memory limit exceeded!" — Alexey started to lose his temper. But no matter how hard he tried, he always got a "memory limit" error.

Suddenly a great idea came to his mind.

"ACM!" — he exclaimed. He remembered that today is a very important day when the most gifted people from all over the Moscow subregion participate in the quarterfinal programming contest.

As far as Alexey knows, programmers are not only brilliant but also very kind. He has decided to ask you to help him make his homework.

Note that your algorithm has to be very fast and VERY LIMITED IN MEMORY!

Input

The first line of input contains two integers n and k ($1 \le n \le 10^8$, $1 \le k \le 2 \cdot 10^5$, $k \le n$) separated by a single space. The following line contains five integers x_{-1}, x_0, A, B and C separated by single spaces, each of them between 0 and $2^{31} - 1$ inclusive.

The array consists of numbers x_1, x_2, ..., x_n where $x_i = (A \cdot x_{i-2} + B \cdot x_{i-1} + C) \bmod 2^{31}$.

Output

You must output the largest k elements of the array in non-increasing order. The elements must be separated by single spaces.

Examples

stdin	stdout
5 3 0 0 0 1 1	5 4 3

Note

In the example, the generated sequence is 1, 2, 3, 4, 5.