Modulo Sequence

Nevest has a sequence **A** with **N** distinct elements. She wants to have a sequence **S** with length **M** and all of the conditions below must be fulfilled:

- For all subarrays in **S** of length **K**, the sum of each number in the subarray must be divisible by **K**.
- For $1 \le i < j \le M$, $S_i \neq S_j$ must hold.
- **A** must be a subsequence of **S**.
- For $1 \le i \le M$, constrain $1 \le S_i \le 5 \times 10^5$ must be fulfilled.
- The length of sequence **S** mustn't exceed 5×10^5.

Nevest is not very good at problem-solving so she asked you instead. Help Nevest by giving her any valid sequence or print "-1" if no valid sequence exist (without quotation marks).

Please note that you don't have to minimize M.

Input Format

N K
A_1 A_2 ... A_N

Output Format

If there's a valid answer, print **M** in the first line followed by a line containing sequence **S** with **M** numbers. If there's no valid sequence **S** print "-1" (without quotation marks).

Sample Input 1

5 3
1 3 2 5 4

Sample Output 1

7
1 3 2 7 9 5 4

Sample Input 2

4 2
1 3 5 7

Sample Output 2

4
1 3 5 7

Constraints

- $1 \leq K \leq N \leq 500$
- $1 \leq A_i \leq 500$
- $A_i \neq A_j$, for $1 \leq i < j \leq N$