Vla-tko, Vla-tko, Vla-tko!

Nobody comes to Vlatko's office hours anymore. Angered, enraged and disgruntled, Vlatko's revenge is a convenient task for COCI:

You are given an infinite arithmetic sequence A(n) = Cn + D, defined for all natural numbers n. We want find a sequence of M distinct natural numbers  $n_1$ ,  $n_2$ , ...,  $n_M$  less than or equal to  $10^{15}$  such that the corresponding members of sequence  $A(n_1)$ ,  $A(n_2)$ , ...,  $A(n_M)$  all have the same sum of digits in base B.

Please note: Every positive integer N can be written in base B as follows: create the unique string  $x_k x_{k-1} ... x_1 x_0$ , where  $0 \le x_i < B$  for each i, and the equation  $x_k B^k + x_{k-1} B^{k-1} + ... + x_1 B + x_0 = N$  is satisfied. The sum of digits is given with  $x_k + ... + x_0$ .

## **INPUT**

The first line of input contains four integers C, D, B and M ( $1 \le C$ ,  $D \le 10000$ ,  $2 \le B \le 5000$ ,  $1 \le M \le 250000$ ).

## **OUTPUT**

The first and only line of output must contain the required numbers, separated by spaces, in an arbitrary order.

Please note: you must output the numbers  $n_p$ , not numbers  $A(n_p)$ . All numbers in the output should be less than or equal to  $10^{15}$ .

The input data will be such that a solution that meets the given conditions exists.

## SAMPLE TESTS

input	input
5 3 2 2	2 1 10 3
output	output
output 2 5	output 2 20 200

## Clarification of the test cases:

In the first test case, one of the possible sequences is the sequence in the output. The corresponding members of the arithmetic sequence are 5 \* 2 + 3 = 13 and 5 \* 5 + 3 = 28. The format of number 13 in base 2 is 1101, whereas the format of number 28 in base 2 is 11100. The sum of digits in both formats is equal to 3.

In the second test case, the corresponding members of the sequence are 2 \* 2 + 1 = 5, 2 \* 20 + 1 = 41, and 2 \* 200 + 1 = 401. Each of the numbers' digits, written in base 10, sum up to 5.