Problem A. Arithmetic Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

A Sequence is a set of one or more things (usually numbers) that are in order. Each number in the sequence is called a term.

In an Arithmetic Sequence the difference between one term and the next is a constant. In other words, we just add the same value each time ... infinitely.

In General we could write an arithmetic sequence like this: $a, a+d, a+2d, a+3d, ...$ where a is the first term, and d is the difference between the terms (called the *common difference*)

To sum up the terms of this arithmetic sequence: $a+(a+d)+(a+2d)+(a+3d)+...$ Use this formula: $S=\sum_{k=0}^{n-1}(a+kd)=\frac{2a+(n-1)d}{2}$

Now you are given a number S, print an arithmetic sequence of **integers** whose sum is equal to S.

Input

The test case only contains an integer $S(-2^{31} \leq S \leq 2^{31}-1)$, represents the sum of an arithmetic sequence.

Output

An arithmetic sequence **of integers** whose sum is equal to S. Separate each number with a space.

Example

standard input	standard output
6	1 2 3
49	1 3 5 7 9 11 13

Problem B. Arithmetic Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

In an Arithmetic Sequence the difference between one term and the next is a constant. In other words, we just add the same value each time ... infinitely.

In General we could write an arithmetic sequence like this: $a, a+d, a+2d, a+3d, ...$ where a is the first term, and d is the difference between the terms (called the *common difference*)

To product the terms of this arithmetic sequence: $a \times (a+d) \times (a+2d) \times (a+3d) \times ...$ Use this formula: $\prod_{k=0}^{n-1}(a+kd) = \frac{ad^{n-1}\Gamma(n+\frac{a}{d})}{\Gamma(1+\frac{a}{d})}$

Now you are given a number n, print two totally different arithmetic sequences **of integers** with length n and same products.

Note: **totally different** means that there shouldn't be any number appear twice in the two sequences.

Input

The test case only contains an integer $n (2 \le n \le 100)$, represents the length of the required arithmetic sequence.

Output

Two lines. Each line consists of n integers seperated by a space.

The first line represents an arithmetic sequence $a_0, a_1, a_2, ..., a_{n-1}$.

The second line represents another arithmetic sequence $b_0, b_1, b_2, ..., b_{n-1}$.

Ensure $\prod_{i=0}^{n-1} a_i = \prod_{i=0}^{n-1} b_i$ and each number in $a_0, a_1, ..., a_{n-1}, b_0, b_1, ..., b_{n-1}$ is unique.

Example

standard input	standard output
3	1 8 15 4 5 6
4	1 2 3 4 -1 -2 -3 -4

Notes

Welcome to CCPC-CC.

Problem C. Meticarith Sequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You ask what is a Meticarith Sequence? I don't know what is a Meticarith Sequence either.

But we both know one thing about Meticarith Sequence. Denote the Meticarith Sequence by x, and let $n = |x|$(the length of x), we found $1 \le x_i \le 100$ and $\sum_{i=0}^{n-1} x_i p^{i+1} \% m = Q$ (% is the modulo operator).

Given Q, p and m, now you know what a Meticarith Sequence is.

Input

The test case only contains one line, three integer $Q, p, m (2 \le Q, p, m \le 10^9)$.

It is guaranteed that p and m are coprime and Q is generated from a sequence x satisfies $1 \le x_i \le 100$ and $\sum_{i=0}^{n-1} x_i p^{i+1} \% m = Q$.

Output

An Sequence **of integers** which is a Meticarith Sequence. Separate each number with a space.

Example

standard input	standard output
`7153780 233 19260817`	`1 1 4 5 1 4`