

15 Save the CodeWars

8 points



Introduction

A hacker has infiltrated our Judge code! He has introduced a virus into our system that threatens the competition. It has kidnaped the server! We need you, our most talented young programmers, to deactivate the virus in order to save the event and our amazing prizes!

Our smart HP CodeWars volunteers' team has discovered that to deactivate the virus we need to enter a 4 numbers combination related to the Fibonacci numbers.

The Fibonacci numbers are the sequence of numbers defined by the linear recurrence equation:

$$F_n = F_{n-1} + F_{n-2}$$

$$\text{where } F_1 = 1 \text{ and } F_2 = 1.$$

Therefore, the Fibonacci numbers are 1, 1, 2, 3, 5, 8, 13, 21, ...

We need your help to write a program that computes the 4 Fibonacci numbers that the virus is asking for.

Input

The input of the program is one line with 4 numbers, greater than 0, and separated by white spaces. Each one of these numbers marks a position of an element in the Fibonacci sequence (for example, 1 marks the first element, F_1).

Output

The output of the program must be the 4 Fibonacci numbers (F_x) in the given positions, separated by white spaces.

Example

Input

10 2 12 5

Output

55 1 144 5

