UVa Online Judge

11510 Erdös Unit Fractions

A unit fraction has the form $\frac{1}{k}$ where k is a positive integer.

In 1800 B.C., egyptian mathematicians represented rational numbers between 0 (exclusive) and 1 (inclusive) as finite sums of the form

$$\frac{1}{k_1} + \ldots + \frac{1}{k_n},$$

where all the denominators were distinct positive integers.

In 1948 A.C., Paul Erdős and Ernst G. Straus formulated the following conjecture about the unit fractions: for all positive integer $n \geq 2$, the rational fraction $4/n$ can be expressed as the sum of three unit fractions. In other words, it is believed that for each n greater than 1, there exist positive integers x, y and z such that

$$\frac{4}{n} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z}$$

The conjecture has been tested for all $n < 10^{14}$. It remains unknown if the conjecture is a theorem or not.

Given an integer $n \geq 2$, your job is to find three positive integers x, y, z whose values verify the Erdős-Straus conjecture.

Input

The problem input consists of several cases, each one defined in a line that contains an integer number n such that $(2 \leq n < 10^4)$.

A line with $n = 0$ indicates the end of the input.

Output

For each case in the input, you must print a line with numbers x, y and z (separated by spaces) such that $\frac{4}{n} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ and $0 < x, y, z < 10^{16}$.

You can print any solution. It's guaranteed that every case in the input has a solution such that $0 < x, y, z < 10^{16}$.

Sample Input

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10
2
7
0
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Sample Output

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5 6 30
1 2 2
4 4 14
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