

Problem C

Partition an Integer

Let n be an integer greater than 2. Write an efficient program to find 3 positive integers a , b , and c , such that $n = a + b + c$ and that their least common multiple, $\text{lcm}(a, b, c)$, is as small as possible.

For example, $17 = 2 + 5 + 10$ and $\text{lcm}(2, 5, 10) = 10$. However, $17 = (1 + 8 + 8)$ and $\text{lcm}(1, 8, 8) = 8$ also is possible. Thus, in this problem, the division of 17 into 1, 8, 8 is better than 2, 5, 10, because 1, 8, 8 has smaller least common multiple.

Input File Format

There are more than one test cases in the input file. Each test case contains an integer n in a line. The last test case is followed by a line containing 0. The value of n is greater than 2 and less than 2^{31} .

Output Format

For each test case, print out the values of a , b , and c . It is required that $a + b + c = n$, $0 < a \leq b \leq c$, and $\text{lcm}(a, b, c)$ is minimized.

If the solution is not unique, print the solution with smallest a . If there are many solutions with the smallest a , print the one with smallest b .

Sample Input

```
12
17
25
0
```

Output for the Sample Input

```
4 4 4
1 8 8
5 10 10
```