Problem F
Find Problem

Input: solution.in
Output: standard output

Normally for a given problem you are asked to find the solution. Here you are required to write a program to find the problem for which the solution is given.
Let \( f = n \) be a proper fraction and \( F = \{ f_1, f_2, \ldots, f_k \} \) be a set of \( k \) distinct unit fractions \( f_i = 1/n_i, i = 1, 2, \ldots, k \), where \( n_i \) (not equal to 1 or \( n \)) is a factor of \( n \) and \( k \) is a suitable integer. Recall that a proper fraction \( f \) is a number of the form \( \alpha/\beta \), where the numerator \( \alpha \) and the denominator \( \beta \) are positive integers and \( 1 \leq \alpha < \beta \). A unit fraction is a proper fraction with \( \alpha = 1 \) and \( \beta = 1 \). Since the numerator of each element of \( F \) is 1, the set \( F \) may be identified also by the set \( D = \{ n_1, n_2, \ldots, n_k \} \) of denominators appearing in the elements of \( F \).

Consider the problem: given the set \( F \), find the sum of elements of \( F \) and its solution: the sum \( f \), where \( k \) is a nonnegative integer as large as possible.

Given a solution \( f \) you are required to write a program to find \( F \) or equivalently find \( D \). It should be noted that for a given solution there may exist no problem, exactly one problem or more than one distinct problem. Let \( p \) be the total number of distinct problems for a given solution.

For example if \( f = \frac{13}{12} \) then \( p = 2 \), \( F = \{ \frac{1}{3}, \frac{1}{6}, \frac{1}{12} \} \) or \( \{ \frac{1}{2}, \frac{1}{6}, \frac{1}{8} \} \) and \( D = \{3, 8, 12\} \) or \( \{4, 6, 8\} \).
Again if \( f = \frac{1}{6} \) then \( p = 0 \) since no \( F \) or \( D \) exists for the given \( f \).

Input
The input may contain multiple test cases.
For each test case there are two input lines. The first line contains the case number \( c \) and the second line gives the numerator \( m \) and the denominator \( n \).
The input terminates with an input 0 for \( c \). The input is illustrated in sample input.

Output
For each test case print \( c \), \( k \) and \( p \) in one line, where \( c \) is the test case number, \( k \) is the largest possible number of distinct unit fractions in \( F \) and \( p \) is the total number of distinct problems.
In each of the next \( p \) lines, print a problem represented by \( k \) elements of \( D \). The elements of \( D \) are printed in increasing order of magnitude. The problems are to be arranged in lexicographic order of the elements of \( D \).

Print a blank line between two successive test cases.

<table>
<thead>
<tr>
<th>Sample Input</th>
<th>Sample Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 0 0</td>
</tr>
<tr>
<td>13 18</td>
<td>2 3 2</td>
</tr>
<tr>
<td>2</td>
<td>3 8 12</td>
</tr>
<tr>
<td>13 24</td>
<td>4 6 8</td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>