Given the values of three integers m, n, p how many integer solutions does the following equation have?

$$\frac{m}{x} + \frac{n}{y} = \frac{1}{p}$$

Input

The input file contains at most 1001 sets of inputs. Each set of input is given in a single line containing three integers which denotes the values of m, n and p respectively.

Input is terminated by a case where the value of m, n and p ($-1000 \leq m, n, p \leq 1000$) is zero.

Output

For each set of input produce one line of output which contains the serial of output followed by an integer N which indicates how many solutions are there for the given value of m, n and p.

Comment: The equation corresponding to the first sample input is: $\frac{1}{x} + \frac{2}{y} = \frac{1}{4}$ and the 11 solutions corresponding to this equation is:

```
-28 7
-12 6
-4 4
2 -8
3 -24
5 40
6 24
8 16
12 12
20 10
36 9
```

Sample Input

```
1 2 4
2 3 4
0 0 0
```

Sample Output

```
Case 1: 11
Case 2: 23
```