G	Next to Never **Input:** Standard Input **Output:** Standard Output	acm

Geometric series have many important roles in mathematics. An infinite geometric series that has a positive integer as first term and whose general ratio is a non-negative rational number can be written as follows:

$$a+a\left(\frac{p}{q}\right)+a\left(\frac{p}{q}\right)^2+a\left(\frac{p}{q}\right)^3+a\left(\frac{p}{q}\right)^4+\ldots to\,\infty$$

Here a is the first term of geometric series and p and q are non negative integer numbers.

Infinite geometric series converges when the general ratio is less than 1 and diverges when the general ratio is greater than or equal to 1. In other words converging infinite geometric series has summation less than infinity. But for this problem, a converging geometric series is a series whose sum does not exceed a given value, as "less than infinity" does not indicate any specific value. We refer this given value as NEXT_TO_NEVER in this problem. So given the value of NEXT_TO_NEVER and a, your job is to find out how many different fractions $\left(\frac{p}{q}\right)$ are there so that the series remain convergent (Summation not exceeding NEXT_TO_NEVER).

Input

Input file contains less than 550 sets of inputs. The description for each set is given below:

The input for each set is given in a single line. This line contains three integers NEXT_TO_NEVER ($1000 \le \text{NEXT\_TO\_NEVER} \le 10000$), a ($1 \le a \le 5$) and MAXV ($20000 \le \text{MAXV} \le 100000$). Meaning of NEXT_TO_NEVER and a is already given in the problem statement. The value MAXV indicates the maximum possible value of p and q. Note that the minimum possible value for p and q is 0 (zero) and 1 (One) respectively.

Input is terminated by a line containing three zeroes.

Output

For each line of input produce one line of output. This line contains the serial of output followed by two integers s and t. The first integer s denotes how many different possible fractions $\left(\frac{p}{q}\right)$, are there considering p and q are relative prime. The second integer t denotes how many different possible fractions $\left(\frac{p}{q}\right)$ are there considering p and q may or may not be relative primes. Look at the output for sample input for details.

Sample Input	Output for Sample Input
1000 1 20000 0 0 0	Case 1: 121468930 199820000