A square root of a number x is a number r such that $r^2 = x$. A discrete square root of a non-negative integer x is a non-negative integer r such that $r^2 \equiv x \bmod N$, $0 \le r < N$, where N is a specific positive integer and mod is the modulo operation.

It is well-known that any positive real number has exactly two square roots, but a non-negative integer may have more than two discrete square roots. For example, for $N = 12$, 1 has four discrete square roots 1, 5, 7 and 11.

Your task is to find all discrete square roots of a given non-negative integer x. To make it easier, a known square root r of x is also given to you.

Input

The input consists of multiple test cases. Each test case contains exactly one line, which gives three integers x, N and r. ($1 \le x < N$, $2 \le N < 1,000,000,000$, $1 \le r < N$).

It is guaranteed that r is a discrete square root of x modulo N. The last test case is followed by a line containing three zeros.

Output

For each test case, print a line containing the test case number (beginning with 1) followed by a list of corresponding discrete square roots, in which all numbers are sorted increasingly.

Sample Input

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1 12 1
4 15 2
0 0 0
```

Sample Output

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Case 1: 1 5 7 11
Case 2: 2 7 8 13
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