

## 1426 Discrete Square Roots

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  $r^2 \equiv x \pmod{N}$ ,  $0 \leq r < N$ , 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  $r$ . ( $1 \leq x < N$ ,  $2 \leq N < 1,000,000,000$ ,  $1 \leq r < N$ ).

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

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

### Sample Output

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