Finite Loop

There's a theorem which states that if P is a prime number and A is natural number, then

$A^P = A \pmod{P}$

Furthermore, if A is not divisible by P, then

$A^{P-1} = 1 \pmod{P}$

or

$A^{P-1} \bmod P = 1$

In this contest, we will use similar equation as below.

$(A^B - C) \bmod P = 1$

Given T, following by T lines of three integer A, C, P.
Output smallest non-zero integer B. If no such B exists, output `-1`.

Constraints

$1 \le T \le 100$

$1 \le P \le 1000000$

$1 \le A < P$

$0 \le C < P$

It is guaranteed that P is prime number

Sample Input

```
2
7 1 17
9 0 23
```

Sample Output

```
Case #1: 10
Case #2: 11
```

Sample Case Explanation

For 1st sample case, there is B = 10, which satisfied the equation $(7^{10} - 1) \bmod 17 = 1$.

For 2nd sample case, there are B = 11, which satisfied the equation $(9^{11} - 0) \bmod 23 = 1$.