Problem G
Kurt Gödel

Time limit: 10 seconds
Memory limit: 512 megabytes

Problem Description

> Kurt Friedrich Gödel was an Austrian mathematician and philosopher. He was influenced by previous scientist philosophers such as Isaac Newton and Immanuel Kant. And then later he also influenced mathematicians and philosophers such as Bertrand Russell. He utilized something known as the Gödel numbering in the proof of his famous "Incompleteness theorem", a theorem that tests the boundary and limit of mathematics and logic itself. This makes him one of the most important logician in the history among the likes of Aristotle.

Let's see how this Gödel numbering system works. It assigns a number to each symbol, in this case we use capital alphabets (`A` to `Z`) and assign them to natural numbers 1 to 26. So that `A` is assigned to 1, `B` is assigned to 2 and so on. So a word such as `KURT` will become a sequence $(11, 21, 18, 20)$. Then, we represent it as product of prime powers. A sequence $(a_1, a_2, \ldots, a_n)$ should be encoded into $2^{a_1} \cdot 3^{a_2} \cdot \cdots \cdot p_n^{a+n}$ where p_i is the i-th prime number. I.e., the Gödel number of `KURT` is $2^{11} \cdot 3^{21} \cdot 5^{18} \cdot 7^{20} = 652074444016292692118429064843750000000000$.

The Gödel number of a long word might be very large. Your friend Albert would like to leave a message for you by using Gödel numbers, but he is lazy to write all the digits. Albert uses a triple (ℓ, r, p) to represent a Gödel number g where ℓ is the length of the corresponding word, p is a prime, and $r \equiv g \pmod{p}$. However, Albert doesn't notice that two words can generate the same triple. For instance, the Gödel numbers `EA` and `JA` are 96 and 3072 respectively, but Albert may use $(2, 3, 31)$ to represent both of them. Let's try to decode Albert's message!

Input Format

There will be at most 30 test cases. Each test case will be given on a line containing three integers. The first integer ℓ $(1 \le \ell \le 8)$ is the length of this word. The second integer r represents the remainder of the result. The third integer is the prime number p used in modulo operation. We guarantee that $0 \le r < p < 2^{31}$. The input will be terminated with three zeros on a line.

Output Format

Output the word that generates this triple if it is unique. Output "`ambiguous`" if more than one possibility exists. Output "`not a word`" if there exists no word that can produce this triple.

Sample Input

```
1 2 3
3 11385 13339
7 123123123 2089141547
7 0 2089141547
0 0 0
```

Sample Output

```
ambiguous
COW
ambiguous
not a word
```