

Program Name: `pseudo.cpp`Input File: `pseudo.dat`

Computer applications often need random numbers as part of simulations and other processing. Since computers are unable to generate truly random numbers, we must use algorithms that generate pseudo-random numbers. The simplest such algorithm uses the following equation repeatedly:

$$result = (seed + increment) \% base$$

where *result* is the number that is generated,
seed is the result from the previous application of the equation ($0 \leq seed < (base-1)$),
increment is a constant value such that ($1 \leq increment < base$),
base is a constant value such that ($base = (\text{max random number desired} + 1)$), and
 % is the modulus operator.

This equation is applied repeatedly using the current value of *result* as the value of *seed* in the next iteration. For example, the starting values of *base*=5, *increment*=3, and *seed*=0, generate the repeating sequence of pseudo-random numbers 3, 1, 4, 2, 0, 3, 1, 4, 2, 0,

A complete uniform distribution is one that generates all numbers between 0 and *base*-1 (inclusive) before repeating the initial seed. The example above is a complete uniform distribution because it generates all numbers between 0 and 4 inclusive before arriving at the initial seed. Using *base*=9, *increment*=3, and *seed*=4 generates the sequence 7, 1, 4, 7, 1, 4, ..., which is not a complete uniform distribution because it will never generate the values 0, 2, 3, 5, 6, or 8. Note that the initial seed has no bearing on whether the distribution is a complete uniform distribution.

Input

For this problem, your program is to read a sequence of base/increment pairs and determine whether each pair will generate a complete uniform distribution. Input to your program consists of multiple lines of input with each line containing exactly one base integer ($1 < base \leq 10000$) and one increment integer ($1 \leq increment < base$). Each line will contain the base integer starting in column 1 followed by a single blank followed by the increment integer. There are no other spaces or extraneous values on the line.

Output

For each line of input, your program should print one of the following two lines:

```
base=b, increment=i, is a complete uniform distribution
base=b, increment=i, is not a complete uniform distribution
```

where *b* is the base value and *i* is the increment value supplied in the input. Your program prints the first message if the base/increment pair will generate all numbers between 0 and *base*-1 (inclusive) exactly once before repeating any of the numbers. Otherwise, your program should print the second message.

Example: Input File

```
5 3
9 3
45 27
100 47
```

Output to screen

```
base=5, increment=3, is a complete uniform distribution
base=9, increment=3, is not a complete uniform distribution
base=45, increment=27, is not a complete uniform distribution
base=100, increment=47, is a complete uniform distribution
```