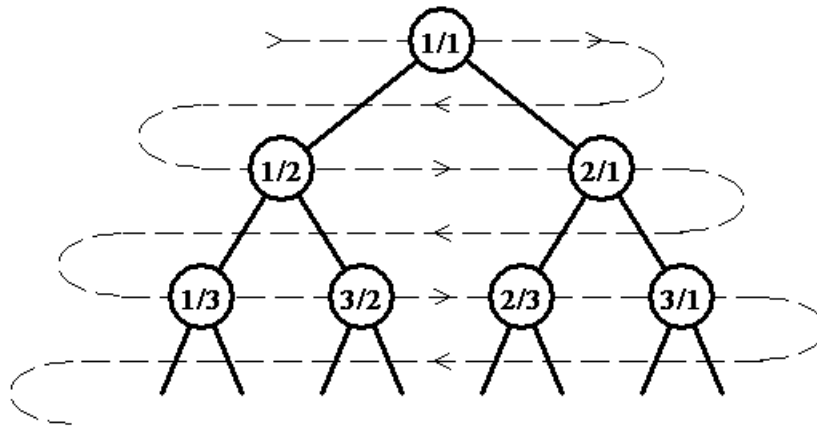


A Rational Sequence

An infinite full binary tree labeled by positive rational numbers is defined by:

- The label of the root is $1/1$.
- The left child of label p/q is $p/(p+q)$.
- The right child of label p/q is $(p+q)/q$.

The top of the tree is shown in the following figure:



A rational sequence is defined by doing a level order (breadth first) traversal of the tree (indicated by the light dashed line). So that:

$$F(1) = 1/1, F(2) = 1/2, F(3) = 2/1, F(4) = 1/3, F(5) = 3/2, F(6) = 2/3, \dots$$

Write a program which takes as input a rational number, p/q , in lowest terms and finds the next rational number in the sequence. That is, if $F(n) = p/q$, then the result is $F(n+1)$.

Input

The first line of input contains a single integer P , ($1 \leq P \leq 1000$), which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input. It contains the data set number, K , which is then followed by a space, then the numerator of the fraction, p , followed immediately by a forward slash (/), followed immediately by the denominator of the fraction, q . Both p and q will be relatively prime and $0 \leq p, q \leq 2,147,483,647$.

Output

For each data set there is a single line of output. It contains the data set number, K , followed by a single space which is then followed by the numerator of the fraction, followed immediately by a forward slash (/) followed immediately by the denominator of the fraction. Inputs will be chosen such that neither the numerator nor the denominator will overflow a 32-bit integer.

Sample Input 1

```
5
1 1/1
2 1/3
3 5/2
4 2178309/1346269
5 1/10000000
```

Sample Output 1

```
1 1/2
2 3/2
3 2/5
4 1346269/1860498
5 10000000/9999999
```