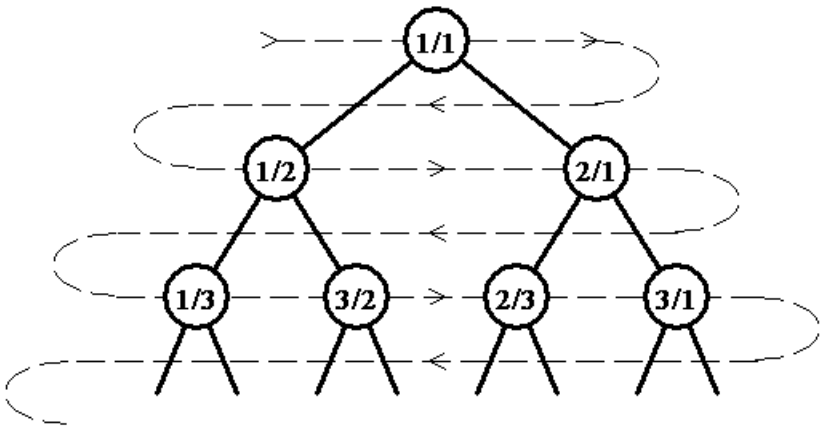
A Rational Sequence

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, ...
```

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	Sample Output 1
5 1 1/1 2 1/3 3 5/2 4 2178309/1346269 5 1/10000000	1 1/2 2 3/2 3 2/5 4 1346269/1860498 5 10000000/9999999