8292 Best Rational Approximation

Many microcontrollers have no floating point unit but do have a (reasonably) fast integer divide unit. In these cases it may pay to use rational values to approximate floating point constants. For instance,

$$355/113 = 3.14159292035398230088495575221 24$$

is a quite good approximation to

$$\pi = 3.14159265358979323846$$

A best rational approximation, p/q, to a real number, x, with denominator at most M is a rational number, p/q (in lowest terms), with $q \leq M$ such that, for any integers, a and b with $b \leq M$, and a and b relatively prime, p/q is at least as close to x as a/b:

$$|x–p/q| \leq |x–a/b|$$

Write a program to compute the best rational approximation to a real number, x, with denominator at most M.

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, followed by the maximum denominator value, M $(15 \leq M \leq 100000)$, followed by a floating-point value, x, $(0 \leq x < 1)$.

Output

For each data set there is a single line of output. The single output line consists of the data set number, K, followed by a single space followed by the numerator, p, of the best rational approximation to x, followed by a forward slash (/) followed by the denominator, q, of the best rational approximation to x.

Sample Input

```
3
1 100000 .141592653589793238
2 255 .141592653589793238
3 15 .141592653589793238
```

Sample Output

```
1 14093/99532
2 16/113
3 1/7
```