

Continued fraction

Given a continued fraction ' $a_0 a_1 a_2 \dots a_n$ ' with $a_i \leq 32767$ calculate the representing rational number ' p/q ' with p and q being coprime. Otherwise given the rational number ' p/q ' with $0 <= p <= 32767$, $0 < q <= 32767$ calculate the representing continued fraction ' $a_0 a_1 a_2 \dots a_n$ ' with $a_n > 1$ if $n > 0$. There are no negative numbers.

Input

In the first line the number of test cases $t < 100$. Then t lines with either a continued fraction or a rational number. No line is longer than 80 bytes without the linefeed.

Output

t lines with either a representing rational number or continued fraction.

Example

Input:

```
4
41/152
1 2 3 4
9/4
2 3 7
```

Output:

```
0 3 1 2 2 2 2
43/30
2 4
51/22
```