Let $b_0, b_1, b_2, \ldots, b_n$ be integers with $b_k > 0$ for $k > 0$. The *continued fraction* of order n with coeficients $b_1, b_2, \ldots, b_n$ and the initial term b_0 is defined by the following expression

$$b_0 + \cfrac{1}{b_1 + \cfrac{1}{b_{2+\ldots+\frac{1}{b_n}}}}$$

which can be abbreviated as $[b_0; b_1, \ldots, b_n]$.

An example of a continued fraction of order $n = 3$ is $[2; 3, 1, 4]$. This is equivalent to

$$1 + \cfrac{1}{3 + \cfrac{1}{1+\frac{1}{4}}} = \frac{43}{19}$$

Write a program that determines the expansion of a given rational number as a continued fraction. To ensure uniqueness, make $b_n > 1$.

Input

The input consists of an undetermined number of rational numbers. Each rational number is defined by two integers, numerator and denominator.

Output

For each rational number given in the input, you should output the corresponding continued fraction.

Sample Input

```
43 19
1 2
```

Sample Output

```
[2;3,1,4]
[0;2]
```