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## 834 - Continued Fractions

Time limit: 3.000 seconds



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### Continued Fractions

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

$$b_0 + \frac{1}{b_1 + \frac{1}{b_2 + \dots + \frac{1}{b_n}}}$$

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

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

$$2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{4}}} = \frac{43}{19}$$

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

### Input

