

Problem L

Magic Lamp 3

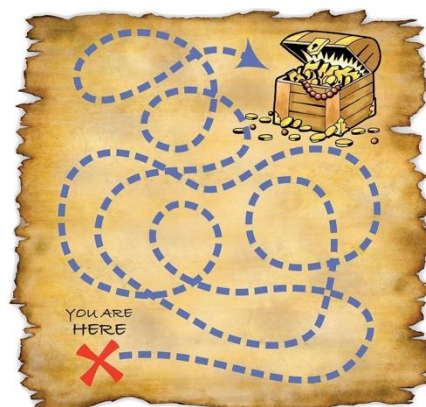
Time Limit: 1 second

Well done! Now is the last quiz and the Genie will show you the great treasure.

You got a number n ($n > 1$). You are asked to decompose your lucky number into a product of multiple positive integers larger than 1. A decomposition of number n is a sequence of integers a_1, a_2, \dots, a_k in which:

$$a_i > 1 \text{ for all } 1 \leq i \leq k$$

$$\text{and } n = a_1 \times a_2 \times \dots \times a_k \text{ (} k \geq 1 \text{)}$$



Two decompositions are considered different if the two corresponding sequences are different. Then, you need to sort all the decompositions in alphabetical order. For example, a number $n = 12$ has 8 ways to decompose which are sorted in the alphabetical order:

$$12 = 2 \times 2 \times 3$$

$$12 = 2 \times 3 \times 2$$

$$12 = 2 \times 6$$

$$12 = 3 \times 2 \times 2$$

$$12 = 3 \times 4$$

$$12 = 4 \times 3$$

$$12 = 6 \times 2$$

$$12 = 12$$

The sequences are counted from 1 after being sorted in alphabetical order.

Now, you will be given multiple number k . For each of the number k , you will need to find the the k^{th} decomposition of your lucky number.

Input

The first line contains the number n ($2 \leq n \leq 10^{18}$)

In the next lines, each line contains a positive integer k ($k \leq 10^{18}$)

The input ends with a line containing number 0. The maximum number of queries is 1000.

Output

The first line contains the number of decompositions of n

With each number k which is larger than 0, output in one line the sequence which is the k^{th} decomposition of n . It is guaranteed that the decomposition always exists.

Sample Input	Sample Output
12 2 4 6 8 0	8 2 3 2 3 2 2 4 3 12