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FACT0 - Integer Factorization (15 digits)

[#number-theory \(/problems/tag/number-theory\)](#)

This is a problem to test the robustness of your Integer Factorization algorithm.

Given some integers, you need to factor them into product of prime numbers.

The largest integer given in the input file has 15 digits. FACT1 ([/problems/FACT1](#)) is a harder version of this problem (the numbers are larger).

You may need to use a general factorization algorithm since no special numbers (e.g. Fermat numbers) are considered when designing the input data.

Input

There are several numbers given, each one in a line.

The input ends with a number 0.

The number of test cases is about 10.

Output

For each number, print in a line the factorization of it. See examples below for the output format.

Example

Input:

```
3111989
13091989
77145199750673
0
```

Output:

```
317^1 9817^1
17^2 89^1 509^1
328439^1 234884407^1
```

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2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some useful links).

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Added by: Duc (/users/paulmcvn)
Date: 2009-10-08
Time limit: 1.138s
Source limit: 50000B
Memory limit: 1536MB
Cluster: Cube (Intel G860) (/clusters/)
Languages: All except: ERL NODEJS
PERL6 VB.NET

Vote requirements



- ✓ be spoj user for at least 5 days
- ✗ solved 5 from 15 needed problems


✓ solve this problem

Own tags

#

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