

## Problem A. Square Function

Input file: *standard input*  
Output file: *standard output*  
Time limit: 2 seconds  
Memory limit: 256 mebibytes

Let us define function  $S: \mathbb{N} \rightarrow \mathbb{N}$  in the following way:  $S(x)$  is the minimum number for which there exists an increasing sequence of integers  $x = t_1 < t_2 < \dots < t_k = S(x)$  such that  $t_1 \cdot t_2 \cdot \dots \cdot t_k$  is a square of some integer. For example,  $S(2) = 6$ ,  $S(3) = 8$ ,  $S(4) = 4$ .

Given  $y$ , find all such  $x$  that  $S(x) = y$ .

### Input

The only line of input contains a single integer  $y$  ( $1 \leq y \leq 10^6$ ).

### Output

On the first line, print the number of solutions. On the second line, list all solutions in increasing order separated by spaces.

### Examples

standard input	standard output
4	1 4
5	0
6	1 2

### Note

$\mathbb{N}$  is the set of positive integers.