

Medium Factorization

The task in this problem is to write a number in a multiplication of prime numbers separated by “ x ”. You need to put the number 1 in this multiplication.

Input

The input consists of several lines.

Each line consists of one integer N ($1 \leq N \leq 10^7$).

Output

For each line you need to output the factorization separated by “ x ” and including 1.

Sample

Input

1
2
4
8

Output

1
1 x 2
1 x 2 x 2
1 x 2 x 2 x 2