



Problem J. Toby Primes

Input: Standard
Output: Standard
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Toby the boston terrier is trying to escape from the pyramid of the egyptian pharaoh. To escape, Toby has to solve a riddle that asks him to factor a list of large integers.

The fastest way Toby knows of factoring integers is iterating over all primes up to the square root of the target number, checking for prime factors. The problem is that in this case the number of primes to check would be very large, so he cannot use that method. Can you help him solve the riddle?

Input

Input begins with an integer t ($1 \leq t \leq 100$), the number of integers to factor, followed by t lines, each line contains an integer n ($2 \leq n \leq 2^{63} - 1$).

Output

For each test case, you should print a single line containing the prime factors of n sorted in increasing order. Note that in case of repeated prime factors, such factors have to be printed several times.

Example

Input	Output
3	2
2	7 13
91	2 2 2 5
40	