

F

Factorial Division

Input: Standard Input
Output: Standard Output



Given two positive integers n , m , find out $n!/m!$, where $n! = 1*2*3*...*n$ ($n \geq 1$).

For example, if $n=6$, $m=3$, $6!/3! = 720/6 = 120$.

Easy, right? Now let's do the reverse: given $k=n!/m!$, find out the pair (n,m) ($n > m \geq 1$).

If there is more than one solution, n should be as small as possible. For example, if $k=120$, the answer should be $n=5$ and $m=1$, not $n=6$ and $m=3$, because $5!/1! = 6!/3! = 120$, and $5 < 6$.

Input

There will be at most 100 test cases. Each test case contains one integer k ($1 \leq k \leq 10^9$).

Output

For each test case, print two integers n and m . If there is no solution, print "Impossible". If there is more than one solution, n should be as small as possible.

Sample Input

Output for Sample Input

120	Case 1: 5 1
1	Case 2: Impossible
210	Case 3: 7 4

Problemsetter: Rujia Liu, Special Thanks: Md. Mahbubul Hasan, Feng Chen