NSquare Sum (Medium)

N-square Sum! Problem? (Medium)

Given Q pairs of integers Ni, Ai (1 <= Ai, Q <= 10^5 , 4 <= N <= 10^2) a, find Ni numbers whose square sums is equal to Ai. If there're more than one solution, print the one lexicographically smallest . If there's no solution, print "Impossible".

Q = 1

Ni = 4

A1 = 16

{ $4^2 + 0^2 + 0^2 + 0^2 = 16$}

Input

There's an integer Q (1 <= Q <= 10^5) in the first line; it stands for the number of queries. The next Q lines describe each query with two integers Ni, Ai (1 <= Ai <= 10^5, 4 <= Ni <= 10^2). Ni is the number of integers that you need to find whose sum of squares is equal to Ai.

Output

You have to print Q lines, each one with Ni numbers such that the sum of squares is equal to Ai. If there's no solution, you've to print "Impossible".

Example

Input:

1

4 16

Output:

0 0 0 4

Input:

1

4 15

Output:

1 1 2 3