Pythagorean Triples

A Pythagorean triple (A, B, C) is defined as three positive integers that satisfy the Pythagorean Theorem: $A^2 + B^2 = C^2$. Given two positive integers A and B, your task is to verify whether they are the "legs" in a Pythagorean triple, i.e. if an integer C exists such that (A, B, C) is a Pythagorean triple.

Input

The first line will contain a single integer N ($0 < N <= 10000$). Each of the next N lines will contain two integers A and B ($0 < A, B <= 100$).

Output

For each test case, output a single line. If a valid C exists, output a line containing the word YES and the value of C, separated by a space. Otherwise, output the single word NO.

Example

Input:
4
2 2
4 3
4 5
5 12

Output:
NO
YES 5
NO
YES 13