Symmetry

After taking a modern art class, Farmer John has become interested in finding geometric patterns in everything around his farm. He carefully plots the locations of his N cows (2 <= N <= 1000), each one occupying a distinct point in the 2D plane, and he wonders how many different lines of symmetry exist for this set of points. A line of symmetry, of course, is a line across which the points on both sides are mirror images of each-other. Please help FJ answer this most pressing geometric question.

INPUT FORMAT:

* Line 1: The single integer N.

* Lines 2..1+N: Line i+1 contains two space-separated integers representing the x and y coordinates of the ith cow (-10,000<= x,y <= 10,000).

SAMPLE INPUT

4 0 0 0 1 1 0 1 1

The 4 cows form the corners of a square.

OUTPUT FORMAT:

* Line 1: The number of different lines of symmetry of the point set.

SAMPLE OUTPUT

4

OUTPUT EXPLANATION

There are 4 lines of symmetry -- one vertical, one horizontal, and two diagonal.