MIUP'13

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Problem G: Polygon Phobia

Bob is a young artist, whose current works are paintings with coloured line segments (like the one depicted in the figure below). But Bob is phobic about polygons, he simply cannot draw any closed chain of line segments.

In his next painting workshop Bob has decided to try a new approach, "the luck of the draw". He will start by carefully choosing the possible line segments and by writing the two different endpoints of each segment on a small piece of paper, just as if the painting canvas was a Cartesian coordinate system.

Then, all those pieces of paper will be put into a large jar, which will be very well shaken. At this point, the painting process will begin, using his "luck of the draw" approach. Whilst the jar is not empty, Bob will pick a piece of paper out of it, one at a time, and will then paint the corresponding line segment unless it *closes an existing chain* (because of his phobia).

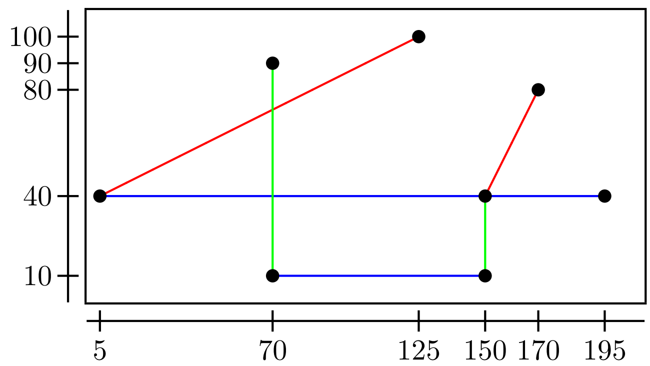
Papers taken out of the jar will be put directly into the recycling bin.

A segment $\overline{p_1\, p_n}$ *closes an existing chain* if the painting already has segments of the form:

$$\overline{p_1\, p_2},\ \overline{p_2\, p_3},\ \overline{p_3\, p_4},\ \ldots,\ \overline{p_{n-1}\, p_n} \quad \text{(for some } n \geq 3\text{)},$$

where $\overline{p\, q}$ denotes the line segment whose endpoints are p and q. Notice that $\overline{p\, q} = \overline{q\, p}$. Notice also that chains are defined by segment endpoints and not by line intersections. For instance:

- line segment $\overline{(1,1)\ (5,1)}$ closes the chain $\overline{(1,1)\ (5,5)}$, $\overline{(5,5)\ (5,1)}$, but
- line segment $\overline{(1,1)\ (6,1)}$ does not close the chain $\overline{(1,1)\ (5,5)}$, $\overline{(5,5)\ (5,1)}$.



The figure shows the line segments Bob would paint if the pieces of paper picked from the jar contained the line segments presented in the table, in the specified order.

Line Segment		Comment
(1)	$\overline{(5,40)\ (195,40)}$	Painted (in blue)
(2)	$\overline{(5,40)\ (125,100)}$	Painted (in red)
(3)	$\overline{(70,90)\ (70,10)}$	Painted (in green)
(4)	$\overline{(150,10)\ (70,10)}$	Painted (in blue)
(5)	$\overline{(150,10)\ (70,90)}$	Not painted due to **(4)** and **(3)**
(6)	$\overline{(125,100)\ (195,40)}$	Not painted due to **(2)** and **(1)**
(7)	$\overline{(170,80)\ (150,40)}$	Painted (in red)
(8)	$\overline{(150,40)\ (150,10)}$	Painted (in green)
(9)	$\overline{(70,90)\ (170,80)}$	Not painted due to **(3)**, **(4)**, **(8)** and **(7)**
(10)	$\overline{(70,90)\ (150,40)}$	Not painted due to **(3)**, **(4)** and **(8)**

Task

Given a sequence of distinct line segments, each one defined by two different endpoints, the goal is to find out how many line segments Bob would actually paint.

Input

The first line of the input contains one integer, S, which is the number of (distinct) line segments. Each of the following S lines contains four integers, x_1, y_1, x_2, and y_2, which indicate that (x_1, y_1) and (x_2, y_2) are the endpoints of a line segment, defined in Cartesian coordinates. Integers in the same line are separated by a single space.

Output

The output has a single line with the number of line segments that Bob would paint.

Constraints

$1 \leq S \leq 100\,000$	Number of line segments.
$0 \leq x_i < 1\,000$	Abscissa of a segment endpoint.
$0 \leq y_i < 1\,000$	Ordinate of a segment endpoint.

Input example 1

```
10
5 40 195 40
5 40 125 100
70 90 70 10
150 10 70 10
150 10 70 90
125 100 195 40
170 80 150 40
150 40 150 10
70 90 170 80
70 90 150 40
```

Output example 1

```
6
```

Input example 2

```
3
5 7 15 7
5 7 20 7
10 7 20 7
```

Output example 2

```
3
```