Line Intersection

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Meow is given N number of lines. All lines are not collinear and are not extendable. Without drawing the Cartesian Plane, Meow wants to know whether all lines intersect each other. Can you help Meow?

Input

The first line contains a single integer N ($2 \leq N \leq 1000$) – the number of lines.

The program reads following N lines containing 4 space-separated floats, X_1, Y_1, X_2, Y_2 ($-10^9 \leq X_i, Y_i \leq 10^9$), representing 2 endpoints of a line $(X_1, Y_1), (X_2, Y_2)$.

Output

Print ”True” if all lines intersect, else "False".

Examples

standard input	standard output
5 -1 -1 5 5 1 5 5 1 1 3 8 3 2.5 0 2.5 5 -2 -1 8 4	True
2 0 0 1 3 5 6 9 17	False