Problem H. Split Game

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

Consider the following game about splitting a simple polygon with N vertices on a plane. The purpose of this game is using a straight line which passes through the origin to split the given simple polygon into as many non-zero area regions as possible. Please finish the game with the best result possible.

Input

The input consists of $N + 1$ lines. The first line contains an integer N. The i-th of the following N lines consists of two integers x_i and y_i indicating the vertices of the given polygon in counter-clockwise order.

- $1 \leq N \leq 10^5$
- $1 \leq x_i, y_i \leq 10^9$
- if $i \neq j$, then $(x_i, y_i) \neq (x_j, y_j)$
- the vertices are given in counter-clockwise order

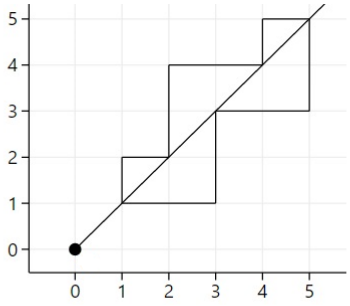
Output

Output one integer: the maximum number of non-zero area regions into which the given polygon can be split by a single line passing through the origin.

Examples

standard input	standard output
4 1 1 2 1 2 2 1 2	2
6 2 1 4 2 8 4 4 8 2 4 1 2	2
10 1 1 3 1 3 3 5 3 5 5 4 5 4 4 2 4 2 2 1 2	5

Note



one possible answer for sample 3