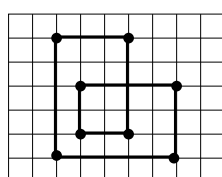


Problem C

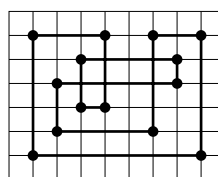
Cutting with Lasers

A laser cutting machine for wood sheets has a laser head that can move in only two directions, horizontal and vertical. You have been hired to be part of the testing team for the machine.

One of the tests consists of programming the machine to perform a non-empty sequence of consecutive cuts that starts and ends at the same point. Each cut in the sequence, except the first, starts at the point at which the previous cut ended. No cuts touch the edge of the sheet to be cut. Figures (a) and (b) below show two examples of cutting sequences, with respectively 8 and 14 cuts.

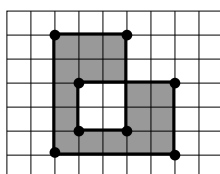


(a)

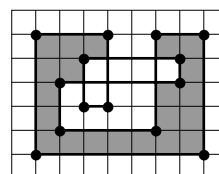


(b)

Your boss asked you to determine the area of the largest piece produced by the sequence of cuts, disregarding the piece attached to the edges of the cut sheet. That is, only the pieces contained in the polygon formed by the cut lines should be considered. Figures (c) and (d) below show respectively the largest pieces produced by the cuts of figures (a) and (b).

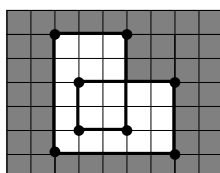


(c)

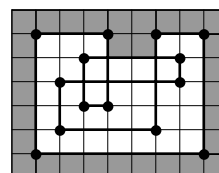


(d)

To illustrate, figures (e) and (f) below show the discarded piece (which contains the edges of the wood sheet) of the cut sequences of figures (a) and (b), respectively.



(e)



(f)

Input

The first line contains an integer N , the number of cuts in the sequence ($4 \leq N \leq 10^4$). The second line contains two integers X_0 and Y_0 , the initial position of the laser head in the sequence of cuts ($1 \leq X_0 \leq 10^3$ and $1 \leq Y_0 \leq 10^3$). Each of the next N lines contains two integers X_i and Y_i , the final position of the cut i ($1 \leq X_i \leq 10^3$ and $1 \leq Y_i \leq 10^3$, for $1 \leq i \leq N$, and $(X_N, Y_N) = (X_0, Y_0)$). All positions given in the input are distinct, except the first and the last positions.

Output

Your program must output a single line, containing a single integer, the area of the largest piece produced by the sequence of cuts.

Input example 1 8 2 1 7 1 7 4 3 4 3 2 5 2 5 6 2 6 2 1	Output example 1 17
Input example 2 14 1 1 8 1 8 6 6 6 6 2 2 2 2 4 7 4 7 5 3 5 3 3 4 3 4 6 1 6 1 1	Output example 2 21