Problem D. Polygon Area

Time limit 1000 ms
Mem limit 524288 kB

Your task is to calculate the area of a given polygon.

The polygon consists of n vertices $(x_1, y_1), (x_2, y_2), \ldots, (x_n, y_n)$. The vertices (x_i, y_i) and (x_{i+1}, y_{i+1}) are adjacent for $i = 1, 2, \ldots, n-1$, and the vertices (x_1, y_1) and (x_n, y_n) are also adjacent.

Input

The first input line has an integer n: the number of vertices.

After this, there are n lines that describe the vertices. The ith such line has two integers x_i and y_i.

You may assume that the polygon is simple, i.e., it does not intersect itself.

Output

Print one integer: $2a$ where the area of the polygon is a (this ensures that the result is an integer).

Constraints

- $3 \le n \le 1000$
- $-10^9 \le x_i, y_i \le 10^9$

Sample

Input	Output
4 1 1 4 2 3 5 1 4	16