

## 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  $(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)$ . The vertices  $(x_i, y_i)$  and  $(x_{i+1}, y_{i+1})$  are adjacent for  $i = 1, 2, \dots, n - 1$ , 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  $i$ th 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

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

### Sample

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