Military Institute of Science and Technology
B.Sc. in Computer Science and Engineering
Evaluation (Week-2), Fall 2021

Subject: CSE-216, Data Structures and Algorithms-II Sessional

Time: 40 Minutes **Full Marks: 10**

Ideone link for “priorityQueue.h”: https://ideone.com/439MxB

Q-1

A point P_i is defined as (x_i, y_i) in 2D coordinate. The cost required to connect 2 points P_i and P_j is calculated as $|x_i - x_j| + |y_i - y_j|$. **10**

Now you will be given a list of n number of points for which you need to calculate the minimum cost to keep all the points connected.

Input

First line of input contains an integer n that denotes the number of points. Next n number of lines contain 2 integers x_i and y_i which represents the i-th point of the list P_i.

Constraint

- $1 \le n \le 100$
- $-100 \le x_i, y_i \le 100$
- No two points have the same coordinate

Output

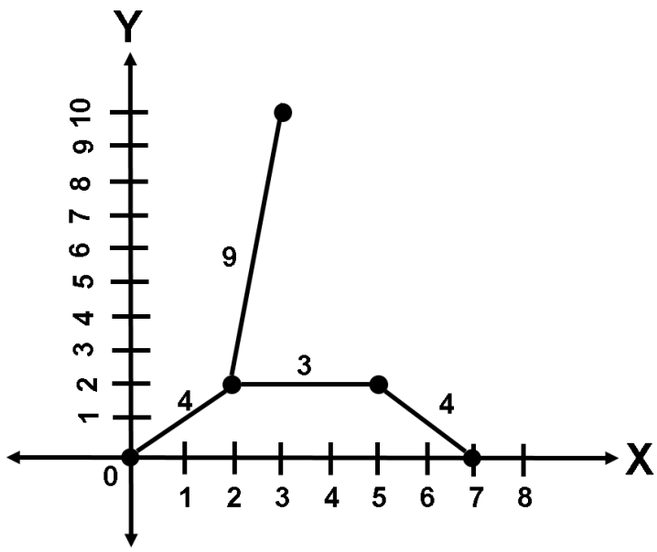
Print a single integer that denotes the total cost to keep all the points connected which is minimum.

Sample Input Output

Input	Output
5 0 0 2 2 3 10 5 2 7 0	20

Clarification

The following figure shows the connection for the sample test case which keeps all the points connected with the lowest cost. There is no other connection possible that costs less than 20.



Total Cost: 20