Public submissions
Source code of every submission to this problem in this contest will be visible for everyone since **0000-00-00 00:00:00**.

SPOJ Problem Set (classical)

4100. Sum of Vectors

Problem code: MVECTOR

English Vietnamese

We can represent a 2D vector as a pair (X,Y). The sum of two or more vectors is a vector whose coordinates are the sums of the corresponding coordinates of all the vectors in the sum. e.g. (1,2)+(3,4)+(5,6) = (1+3+5,2+4+6) = (9,12) Weight of a vector (x,y) is defined as x*x+y*y. You are given N vectors on a plain.

Your task is to write a program that will determine a subset of those vectors so the weight of the sum of all vectors in that subset is maximal.

Note: Use 64-bit integers (int64 in pascal or long long in c)

Input

In the first line of the input file is an integer N, 1 <= N <= 30,000, the number of vectors.

The following N lines contain descriptions for each of the vectors. A description is made of two integers X and Y, separated by a single blank, -30,000 <= X,Y <= 30,000.

None of the given vectors will be (0,0)

Output

In the first and only line of the output file you have to write the weight of the maximum sum.

Sample

```
suma.in

5
5 -8
-4 2
4 -2
2 1
-6 4

suma.out

202
```

suma.in

```
4
1 4
-1 -1
1 -1
-1 4
```

suma.out

```
64
```

suma.in

```
9
0 1
6 8
0 -1
0 6
-1 1
-1 2
5 -4
1 0
6 -5
```

suma.out

```
360
```

Added by: Critical Thinking
Date: 2009-03-22
Time limit: 1s
Source limit: 50000B
Languages: All
Resource: COI 03