Task: OGR
Fence

Bolivian ICPC Camp, contest #4. Source file `ogr.*` Available memory: 256 MB.

Farmer Byteasar has recently bought an agricultural plot of land. There are n plants on his plot, each with a certain annual yield. The yield can be either positive, e.g., for fruit trees, or negative, e.g., for common pests, which only consume the soil, sun, water and nutrients that would be (according to Byteasar) better used by other plants.

Byteasar has estimated the annual yield of each plant on his plot. Due to strict environmental laws, Byteasar cannot simply remove the plants of negative yield. As he is about to fence his plot of land anyway, he intends to encircle only the part which maximizes his total annual yield – though he cannot get rid of the pests, he is definitely not going to invest time and money in their protection!

Byteasar has asked for your help in laying out the fence optimally. The fencing will be frugal: Byteasar will choose a subset of plants on his plot and use those to span and support a wire fence. Hence, the fenced in region has to be a convex polygon with a positive area. Help Byteasar in choosing the plants to span the fence (i.e., vertices), so that the total yield of the encircled plants is maximized.

Input

In the first line of the standard input, there is a single integer n ($3 \le n \le 300$) that specifies the number of plants on Byteasar's plot. The n lines that the follow specify the plants: the i-th such line contains a triple of integers x_i, y_i and v_i ($-10^9 \le x_i, y_i \le 10^9$, $-10^9 \le v_i \le 10^9$) which are the coordinates (in a Cartesian coordinate system) of a point (x_i, y_i), where the i-th plant grows, and the yield v_i of the plant, which is positive for fruit trees and negative for pests. No three plants are co-linear.

Output

A single line should be printed to the standard output, containing the maximum total yield of the plants which can be encircled by the fence.

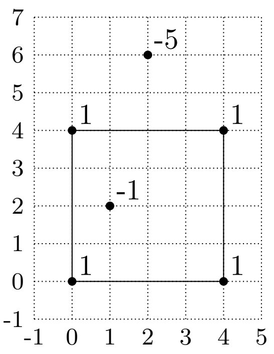
Example

For the input data:

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

the correct result is:

```
3
```



Explanation for the example: The figure depicts an optimal fence layout which grants a total yield of 3. Another way to attain the same yield is to span the fence by the plants at the points $(0, 0)$, $(4, 0)$ and $(4, 4)$.