

Problem E: Euroexpress

Time limit: 2 seconds

You want to travel to the Olympic Games this year and already decided to take the Eurostar to Paris to be more environmentally friendly. Your next decision is to pick a suitcase for your journey. Upon reading the terms and conditions, you noticed that there is no clear size limit for the suitcase. Instead, they provide various two-dimensional constraints, and your suitcase is compliant if it fits in a box where each side matches one of the aforementioned constraints.



Suitcase size check. Photo by Kenzel2

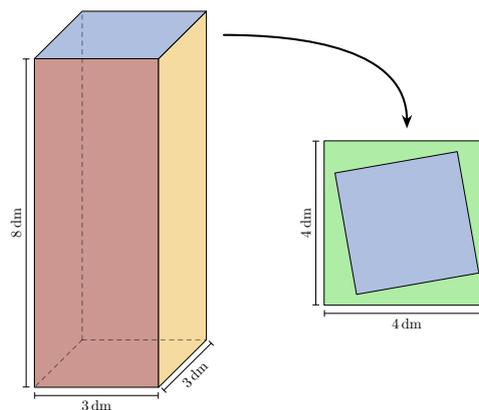


Figure E.1: Illustration of Sample 2. A suitcase with dimensions $3\text{dm} \times 8\text{dm} \times 3\text{dm}$ fits in a box where each side has either dimension $3\text{dm} \times 8\text{dm}$ or $4\text{dm} \times 4\text{dm}$, i.e. complies either with constraint 3 or 1 of the input.

Since you need to buy a new suitcase anyway, you wonder how much volume could a suitcase have and still be compliant?

Input

The input consists of:

- One line with an integer n ($1 \leq n \leq 2 \cdot 10^5$), the number of constraints.
- n lines, each containing two integers a and b ($1 \leq a, b \leq 10^6$), the dimensions of the constraint in dm.

Output

Output a single integer, the maximum volume of a suitcase that you can carry with you in dm^3 .

Sample Input 1

```
3
2 31
5 5
13 3
```

Sample Output 1

```
125
```

Sample Input 2**Sample Output 2**

```
4
4 4
2 15
8 3
20 1
```

```
72
```