

J Euroexpress

Time limit: 2s

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

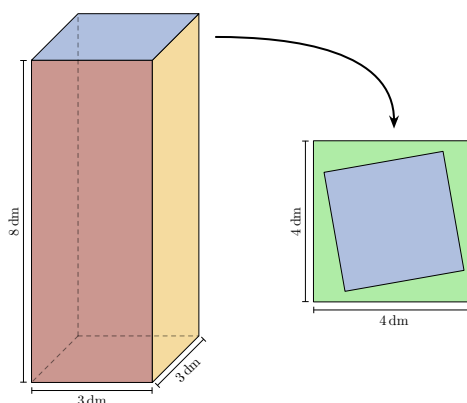


Figure J.1: Illustration of Sample 2. A suitcase with dimensions $3\text{ dm} \times 8\text{ dm} \times 3\text{ dm}$ fits in a box where each side has either dimension $3\text{ dm} \times 8\text{ dm}$ or $4\text{ dm} \times 4\text{ dm}$, i.e. complies either with constraint 3 or 1 of the input.

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

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3
2 31
5 5
13 3
```

Sample Output 1

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125
```

Sample Input 2

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

Sample Output 2

```
72
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