Problem A. AtCoDeer and Election Report

Time limit 2000 ms
Mem limit 262144 kB

Problem Statement

AtCoDeer the deer is seeing a quick report of election results on TV. Two candidates are standing for the election: Takahashi and Aoki. The report shows the ratio of the current numbers of votes the two candidates have obtained, but not the actual numbers of votes. AtCoDeer has checked the report N times, and when he checked it for the i-th $(1 \leqq i \leqq N)$ time, the ratio was $T_i : A_i$. It is known that each candidate had at least one vote when he checked the report for the first time.

Find the minimum possible total number of votes obtained by the two candidates when he checked the report for the N-th time. It can be assumed that the number of votes obtained by each candidate never decreases.

Constraints

- $1 \leqq N \leqq 1000$
- $1 \leqq T_i, A_i \leqq 1000 (1 \leqq i \leqq N)$
- T_i and A_i $(1 \leqq i \leqq N)$ are coprime.
- It is guaranteed that the correct answer is at most 10^{18}.

Input

The input is given from Standard Input in the following format:

```
N
T_1 A_1
T_2 A_2
:
T_N A_N
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Output

Print the minimum possible total number of votes obtained by Takahashi and Aoki when AtCoDeer checked the report for the N-th time.

Sample 1

Input	Output
3 2 3 1 1 3 2	10

When the numbers of votes obtained by the two candidates change as $2, 3 \to 3, 3 \to 6, 4$, the total number of votes at the end is 10, which is the minimum possible number.

Sample 2

Input	Output
4 1 1 1 1 1 5 1 100	101

It is possible that neither candidate obtained a vote between the moment when he checked the report, and the moment when he checked it for the next time.

Sample 3

Input	Output
5 3 10 48 17 31 199 231 23 3 2	6930