Manasa and Calculations

Manasa is a student in the department of Mathematics. She is pretty good at doing calculations involving small numbers, but large numbers scare her. So she wants you to help her in the following calculations.

Given two numbers in the following manner:

$$A = p_1^{a_1} \times p_2^{a_2} \times p_3^{a_3} \times \cdots \times p_N^{a_N}$$

$$B = p_1^{b_1} \times p_2^{b_2} \times p_3^{b_3} \times \cdots \times p_N^{b_N}$$

(p_i is a prime number, and all the p_i's are distinct)

She wants you to calculate S for her, where S is the sum of $m + n$ for all pairs of numbers where $m \leq n$, $\gcd(m, n) = B$ and $\text{lcm}(m, n) = A$. In other words:

$$S = \sum_{\substack{\gcd(m,n)=B \\ \text{lcm}(m,n)=A \\ m \leq n}} (m + n)$$

As the value of S can be very large, she wants you to print $S \bmod 10^9 + 7$.

Input Format

The first line contains an integer N, the number of prime factors.
Each of the next N lines contains three numbers: p_i, b_i and a_i.

Output Format

Print the value of $S \bmod 10^9 + 7$.

Constraints

$1 \leq N \leq 500$
$2 \leq p_i \leq 5000$
$1 \leq a_i \leq 10^9$
$1 \leq b_i \leq 10^9$
$b_i \leq a_i$

Sample Input

```
2
2 1 2
3 1 2
```

Sample Output

```
72
```

Explanation

We have $B = 6$ and $A = 36$. There are two pairs of integers (m, n) with $\gcd$ equal to 6 and lcm equal to 36, and such that $m \leq n$. These are $(12, 18)$ and $(6, 36)$:

- $\gcd(12, 18) = 6$ and $\text{lcm}(12, 18) = 36$
- $\gcd(6, 36) = 6$ and $\text{lcm}(6, 36) = 36$

Hence, $S = (12 + 18) + (6 + 36) = 72$