

Cakes

Task from Polish Youth Olympiad in Informatics

<https://szkopul.edu.pl/problemset/problem/RaW0tlbxAfJSfcWvgWyVHyLz/site/?key=statement>

I want to rest!

John has just finished baking cakes, while he is expected to warm up the oven again - his family would like to taste fruitcakes or cheesecakes. The boy decided to bake so many cakes, that it would last for a long, long time - a time when he will finally rest.

Your task

Knowing ingredients located at home and recipes for a fruitcake and cheesecake, tell John how many cakes in total he can bake.

Input

In the first line there is 1 number meaning amount of ingredients John has at home:

$$1 \leq n \leq 10^5$$

In the second line there is n numbers. Number i means that John has p_i amount of ingredient i . We know that $0 \leq p_i \leq 10^9$

In the third line there is n numbers. Number i means that we need f_i amount of ingredient i to make single fruitcake. We know that $0 \leq f_i \leq 10^9$

In the fourth line there is n numbers. Number i means that we need c_i amount of ingredient i to make single cheesecake. We know that $0 \leq c_i \leq 10^9$

Output

We shall write single number – maximum amount of cakes John can bake. It can be any combination of fruitcakes and cheesecakes.

Examples

Example 1	Example 2	Example 3
Input	Input	Input
1	3	2
13	7 9 2	7 7
2	1 3 2	0 1
4	1 2 2	3 0
Output	Output	Output
6	1	9