

CengTube Gazoz Boys

Time Limit: 1.0s **Memory Limit:** 256M

CengTube is a video sharing platform developed by the junior METU CENG students. Being confident that this platform will be the next biggest social media platform in a few months, Kolsuz and Yiit had set up a CengTube channel, and it is already one of the most-followed channels.

To increase their number of followers, Kolsuz and Yiit came up with a new challenge idea: Parkour and Sodas! For this challenge, Yiit will be drinking from soda cans and crushing empty cans while doing parkour for coolness points. Among the n soda cans, upon picking up the i^{th} soda can, Yiit will empty the can by drinking it, and doing so will award him with d_i *coolness points*. However, drinking soda way too fast makes carbonation burn Yiit's throat, resulting in him not being able to drink the next dp_i soda cans.

To gain even more *coolness points*, Yiit can crush an empty can after drinking it. Doing so will award him additional c_i *coolness points*, but doing so will make his head hurt, and he won't be able to pickup the next cp_i cans in addition to the dp_i cans.

Yiit needs to finish the parkour as quickly as possible. For that reason, he shouldn't carry soda cans around. After picking up a soda can, he must immediately empty that can and crush the can if he chooses to. Also, he can only go forward in the parkour: if he walks past a can once, he cannot go back to pick it up.

Kolsuz and Yiit want to achieve the highest *coolness points* possible. However, Kolsuz has spent a full night preparing the parkour and now is too tired to come up with the optimal parkour choreography. For a given parkour, can you help him calculate the highest possible *coolness points*?

Input

The number of soda cans n is given in the first line.

In the next line, *coolness points* awarded for emptying the i^{th} soda can, d_i is given.

In the third line, dp_i , the number of soda cans Yiit will be unable to pick up for drinking i^{th} soda can is given.

The fourth line consists of the additional *coolness points* awarded for crushing cans, c_i .

In the last line, cp_i , the number of additional soda cans Yiit will be unable to pick up for crushing i^{th} soda can is given.

- $1 \leq n, dp_i, cp_i \leq 10^5$
- $1 \leq d_i, c_i \leq 100$

Output

Print the highest possible *coolness points* for a given parkour.

Examples

Input:

```
4
1 1 1 1
1 1 1 1
1 1 1 1
1 1 1 1
```

Output:

```
4
```

Input:

```
4
2 3 4 5
2 1 3 4
3 2 2 1
2 2 3 4
```

Output:

```
9
```

Explanation

In the first input, Yiit can crush and drink the first soda to gain 2 (1+1) points. He becomes tired for the next 2 sodas. Then, he can crush and drink the last soda to gain 2 (1+1) more points.

In the second input, Yiit can drink the second soda to gain 3 points. He becomes tired for the next 2 sodas. Then, he can crush and drink the last soda to gain 6 (5+1) more points.