Lora finally decided to quit her job and do something more interesting – selling fruits.

Currently she has **N** fruits numbered from 1 to N, which she wants to sell. Unfortunately, her new workplace is so narrow that she can only put up one fruit for sale at a time. To make her life simpler, she just puts the fruits in order – **i.e. fruit number i must be sold not later than fruit number i+1.**

The price of fruit number **i** at day 0 is Ai. Every day each fruit ripens and hence the price of fruit number **i** increases by Bi each day. However, if fruit number **i** is not sold by day Ki, it rots and has to be thrown away (i.e. sold for price of 0). Formally stated, the price of fruit number **i** at day **d** is:

Ai + d\*Bi if d<Ki

0 if dKi

Lora can sell as many fruits as she wants in a single day, as long as she keeps the order, or she could decide to not sell any fruits in a single day. She is now wondering what the maximum profit she can get is.

**Note: The days are counted starting from 0. If a certain fruit rots at day 0, then it can never be sold for a price different than 0.**

**Input**

The first line of the input file fruits.in contains a single integer **N** – the amount of fruits.

The second line contains N space-separated integers – the prices of each fruit at day 0 (i.e. the array A).

The third line contains N space-separated integers – the price increases of each fruit for a day (i.e. the array B)

The last line contains N space-separated integers – the days at which each fruit rots (i.e. array K).

**Output**

On a single line of the output file fruits.out print a single number – the maximum profit Lora can achieve, considering the given constraints.

**Constraints**

1 ≤ N ≤ 5 000

0 ≤ Ki ≤ 10 000

0 ≤ Ai, Bi ≤ 1 000 000 000

**Time limit: 0.6 sec**

**Memory limit: 256 MB**

**Sample test**

|  |  |
| --- | --- |
| **Input (fruits.in)** | **Output (fruits.out)** |
| 3  1 2 3  6 4 2  2 1 3 | 14 |

**Clarifications**

The optimal solution is to sell the first fruit at day 1 for 1+1\*6=7. Thus the second fruit rots, since it cannot be sold earlier than the first. We then sell the third fruit at day 2 for 3+2\*2=7. The total profit is 7+7=14.