Problem A. Maximum Flow

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Bobo has an undirected graph with $(2n + 2)$ vertices conveniently labeled with the following pairs of integers: $(0, 0), (0, 1), \ldots, (0, n), (1, 0), (1, 1), \ldots, (1, n)$. The graph has three classes of edges.

- The edges of the first class connect vertices $(0, i-1)$ and $(0, i)$ with capacity a_i for $i \in \{1, 2, \ldots, n\}$.
- The edges of the second class connect vertices $(1, i-1)$ and $(1, i)$ with capacity b_i for $i \in \{1, 2, \ldots, n\}$.
- The edges of the third class connect vertices $(0, \lfloor \frac{i-1}{2} \rfloor)$ and $(1, \lfloor \frac{i}{2} \rfloor)$ with capacity c_i for $i \in \{1, 2, \ldots, 2n + 1\}$.

Bobo would like to find the maximum flow from vertex $(0, 0)$ to vertex $(1, n)$.

Input

The input contains zero or more test cases, and is terminated by end-of-file. For each test case:

The first line contains an integer n $(1 \le n \le 5 \cdot 10^5)$.

The second line contains n integers $a_1, a_2, \ldots, a_n$.

The third line contains n integers $b_1, b_2, \ldots, b_n$.

The fourth line contains $(2n + 1)$ integers $c_1, c_2, \ldots, c_{2n+1}$.

The constraints are: $1 \le a_i, b_i, c_i \le 10^9$.

It is guaranteed that the number of test cases does not exceed 10^5, and the sum of all n does not exceed $5 \cdot 10^5$.

Output

For each test case, output an integer which denotes the maximum flow.

Example

standard input	standard output
1 2 2 1 3 1 3 1 4 7 2 5 8 2 3 3 2 1 2 4	5 6