E. Knapsack on a Segment

time limit per test: 1 second

memory limit per test: 256 megabytes

Given an array of n items, for each of them its weight is w_i and cost is c_i. You need to select a **segment** of this array, the total weight on which is not more than s, and the total cost is maximum.

Input

The first line contains integers n and s ($1 \le n \le 10^5$, $1 \le s \le 10^9$).

The second line contains n integers w_i ($1 \le w_i \le 10^9$).

The third line contains n integers c_i ($1 \le c_i \le 10^9$).

Output

Print one number, the maximum total cost of items that can be put into a knapsack.

Example

input	Copy
6 20 9 7 6 5 8 4 7 1 3 6 8 3	

output	Copy
17	