

E. Wardrobe

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Olya wants to buy a custom wardrobe. It should have n boxes with heights a_1, a_2, \dots, a_n , stacked one on another in some order. In other words, we can represent each box as a vertical segment of length a_i , and all these segments should form a single segment from 0 to without any overlaps.

Some of the boxes are important (in this case $b_i = 1$), others are not (then $b_i = 0$). Olya defines the *convenience* of the wardrobe as the number of important boxes such that their bottom edge is located between the heights l and r , inclusive.

You are given information about heights of the boxes and their importance. Compute the maximum possible convenience of the wardrobe if you can reorder the boxes arbitrarily.

Input

The first line contains three integers n , l and r ($1 \leq n \leq 10\,000$, $0 \leq l \leq r \leq 10\,000$) — the number of boxes, the lowest and the highest heights for a bottom edge of an important box to be counted in convenience.

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10\,000$) — the heights of the boxes. It is guaranteed that the sum of height of all boxes (i. e. the height of the wardrobe) does not exceed 10 000: Olya is not very tall and will not be able to reach any higher.

The second line contains n integers b_1, b_2, \dots, b_n ($0 \leq b_i \leq 1$), where b_i equals 1 if the i -th box is important, and 0 otherwise.

Output

Print a single integer — the maximum possible convenience of the wardrobe.

Examples

input
5 3 6 3 2 5 1 2 1 1 0 1 0
output
2

input
2 2 5 3 6 1 1
output
1

Note

In the first example you can, for example, first put an unimportant box of height 2, then put an important boxes of sizes 1, 3 and 2, in this order, and then the remaining unimportant boxes. The convenience is equal to 2, because the bottom edges of important boxes of sizes 3 and 2 fall into the range $[3, 6]$.

In the second example you have to put the short box under the tall box.