SUBSUMS - Subset Sums

Wednesday, January 5, 2022 4:45 PM

SUBSUMS - Subset Sums

#binary-search #bitmasks

Given a sequence of N ($1 \le N \le 34$) numbers S_1, ..., S_N ($-20{,}000{,}000 \le S_i \le 20{,}000{,}000$), determine how many subsets of S (including the empty one) have a sum between A and B ($-500{,}000{,}000 \le A \le B \le 500{,}000{,}000$), inclusive.

Input

The first line of standard input contains the three integers N, A, and B. The following N lines contain S_1 through S_N, in order.

Output

Print a single integer to standard output representing the number of subsets satisfying the above property. Note that the answer may overflow a 32-bit integer.

Example

Input:
3 -1 2
1
-2
3

Output:
5

```
Input:
3 -1 2
1
-2
3

Output:
5
```

The following 5 subsets have a sum between -1 and 2:

- 0 = 0 (the empty subset)
- 1 = 1
- 1 + (-2) = -1
- -2 + 3 = 1
- 1 + (-2) + 3 = 2

Submit solution!

From <https://www.spoj.com/problems/SUBSUMS/>