Divide in Half

You are given a list of **N** items. Each item has a value a_i (a_1, a_2,..., a_n).

Let's split these items into two subsets such that the absolute difference between their sums is minimum. Calculate this difference.

Input

-    The first line contains an integer **N** ($1 \leq N \leq 100$).

-    The second line has **N** integers a_1, a_2..., a_n respectively ($0 \leq a_i \leq 10^7$ and $0 \leq a_1+a_2+\ldots+a_n \leq 10^7$).

Output

Print minimum difference between two sets.

Sample

Input	Output
7 1 2 3 4 5 6 7	0
4 1 11 5 6	1