

Problem I

Cut the Legs

Input: standard input

Output: standard output

Time Limit: 2 seconds

Memory Limit: 32 MB

A table with four legs may rock, even on a flat surface, if its legs are not all the same length. Interestingly, regardless of how many legs have differing lengths, it is always possible to saw an amount from some legs so as to make the table sit level on a flat surface without rocking.

Your job is to generalize this approach to a table with many legs equally spaced around the perimeter of a round table. You are to determine the total length of legs to cut so as to have the table sit level without rocking on a flat surface with not necessarily every leg touching the ground.

Input

Input consists of data for a number of tables. For each table, a line will give an integer **t**, between **3** and **50**, indicating the number of legs on the table. **t** subsequent lines will give, in order around the table's circumference, the lengths of the legs in millimeters. Each leg is perpendicular to the table top. A line containing **0** follows the data for the last table.

Output

Pick a strategy that cuts the least total length from all legs and print this amount as an integer number. Print a blank line between outputs for each table.

Sample Input

```
3
2000
3000
4000
4
2000
2000
1999
2001
5
2000
2000
1999
2001
1999
0
```

Sample Output

3000

4

1

(Math Lovers' Contest, Source: University of Alberta Local Contest)