Math Costs Bucks

Program Name: `MathCosts.java` **Input File:** `mathCosts.dat`

Mathematicians are expensive! When you assign them to a project, there will be big bucks to pay. You have been hired to write a program to estimate the cost of addition (phase 1 of the project). The given numbers must be added together, but the order of addition matters.

The cost for phase 1 of the project ("Cost of Addition") is the sum of all individual additions. The result of an individual addition may itself be an operand in a succeeding addition. The mathematicians stop adding when only 1 value remains (no addition possible).

So, to add **1** and **10**, you incur a cost of **11**. If you want to add **1**, **2** and **3**, there are several ways…

1 + 2 = 3, cost = 3 3 + 3 = 6, cost = 6 Total = 9	1 + 3 = 4, cost = 4 2 + 4 = 6, cost = 6 Total = 10	2 + 3 = 5, cost = 5 1 + 5 = 6, cost = 6 Total = 11

Your mission is to find the lowest cost to add a set of integers.

Input

Each test case will start with a positive number, **N (2 ≤ N ≤ 5000)** followed by **N** positive integers (all are less than **100,000**). Input is terminated by a case where the value of **N** is zero. This case should not be processed.

Output

For each case print the minimum total cost of addition in a single line.

Sample Input

```
3
1 2 3
4
1 2 3 4
0
```

Sample Output

```
9
19
```