Task Rod

A rod has marks at every centimeter. The beginning of the rod has a division 0 and it follows divisions indicating 1 cm, 2 cm, ..., etc. to the last division for n cm at the end of the rod. The rod is made of non-homogeneous material and the section between 0 and 1 weighs a_0 grams; section between division 1 and division 2 weights a_1 grams, etc., and the section between division $n - 1$ and n weighs a_{n-1} grams.

The rod is placed in a special machine and a worker can choose a division of the rod, so the machine to cut the rod into two parts at this division. The parts fall to the floor. If a part has length of 1 cm, the worker takes it up and places in a container for finished products.

If there are parts longer than 1 cm, the worker takes such a part and puts it into the machine to cut it again. This process continues until there are parts for cutting. During this process, the worker permanently raises parts. Write program **rod**, which calculates how minimal can be the total weight of the raised parts.

Input

The first line of the standard input contains a positive integer n. The values a_0, a_1, ..., a_{n-1} are given in the second row and are separated by spaces.

Output

The output should contain one integer that is equal to the demanded minimum weight.

Constraints

$1 < n < 500; 0 < a_i < 100, \text{for } i = 0,\ldots, n - 1.$

Example
Input
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3
1 6 3
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Output
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17
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Explanation:
Cutting between the pieces that are weighing 6 and 3. We take them (one - to put again in the machine, and the other – to the container) and thus raise (1 + 6) + 3 = 10 grams. Then the piece in the machine is cut into two pieces with a length of 1 cm and a weight, respectively 1 and 6 grams. So total raise 10 + 6 + 1 = 17 grams. Another way of dissection leads to no smaller total weight of the pieces that the worker raises.