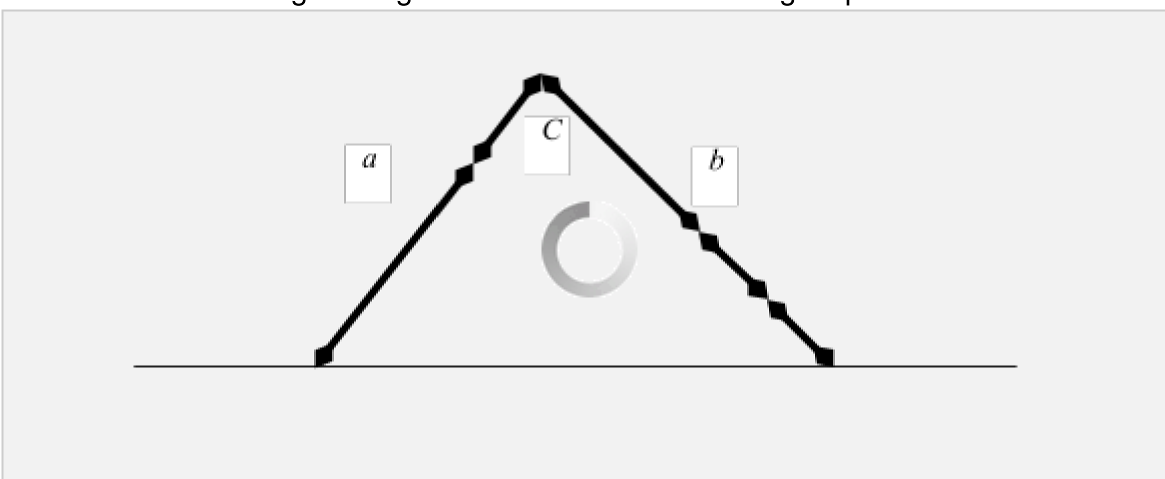
Queen Dido's New Challenge (prob8)

The Problem

Queen Dido of Carthage (850 BC) solved the first isoperimetric problem. She was promised as much land along the coast as she could enclose with an ox hide. According to the legend, she cut up a bull's hide into very thin strips which she sewed together into one long string. Then she took the seashore as one edge for the piece of land and laid the skin into a semi-circle. Modern calculus of variations would prove that Queen Dido's solution is optimal and with a fixed string length the semi-circle encloses maximum area along a straight coastline.

Now Queen Dido was facing a new challenge. Given a bunch of twigs of various lengths, she needed to form a triangle along the coast to enclose the largest possible area.



One side of the triangle was the seashore and would not use any twigs. The other two sides should be formed by laying the twigs. The twigs could not be cut down further.

From the area formula Area = (½)ab sin C, it is easy to see that the optimal triangle must be a right triangle. An isosceles triangle (a=b) is clearly optimal, but it may not be possible to form because the twigs are discrete. However, triangles closer to the isosceles triangle will have larger areas, as seen from the formula Area = (½)ab = (½)(m^2 - $(a-m)^2$), where m = (a + b)/2 is a constant.

Input

Each input line consists of a positive integer n ($2 \le n \le 100$), the number of twigs, followed by n positive integers representing the lengths of the twigs:

n L1 L2 ... Ln

The sum of the twig lengths is odd and $L1 + L2 + \cdots + Ln < 100000$.

Output

For each input line, print the area of the largest triangle, rounded to the nearest integer.

Sample Input

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3 4 2 5
4 1 3 7 10
4 3 3 8 11
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Sample Output

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15
55
77
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