Problem ID: integral
Polygonal Integral

The *integral* of a function $f(x)$ from a to b, denoted

$$\int_a^b f(x)dx,$$

is a mathematical object that represents the area between the x-axis, $f(x)$, and the lines $x = a$ and $x = b$. Pictured below is the the graph $f(x) = x^2$ along with the integral $\int_{0.5}^{1.5} x^2 dx$ shaded in red.

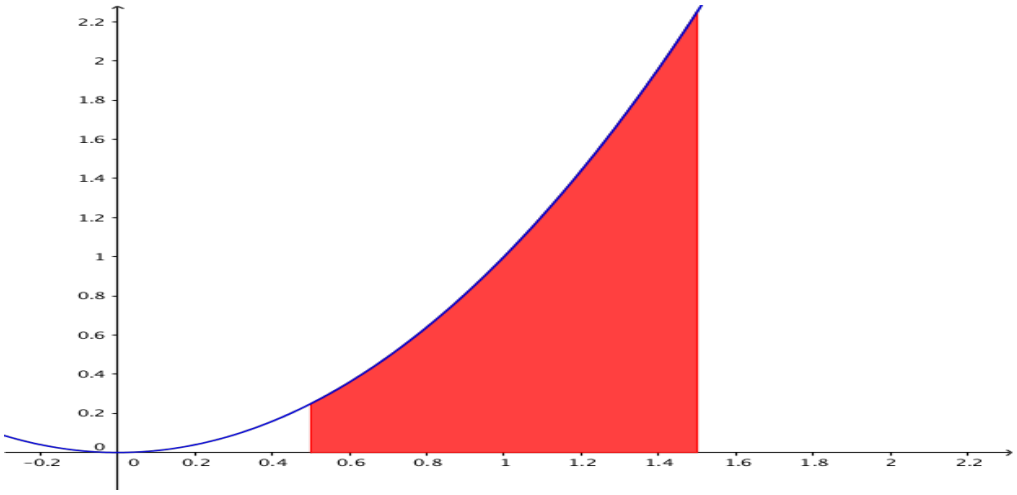

Figure 1: An example integral of a function.

In general it is fairly difficult to compute integrals without a smorgasbord of algebraic transformations. However, it is possible to generalize the integral and apply it to mathematical objects other than functions (some of which are actually easier to compute algorithmically)! A *polygonal chain* is a sequence of points $(x_0, y_0), (x_1, y_1), ..., (x_N, y_N)$; every consecutive pair of points gives us a line segment. For example, we draw the the polygonal chain $(1, 5), (3, 7), (5, 2), (10, 9)$ as follows:

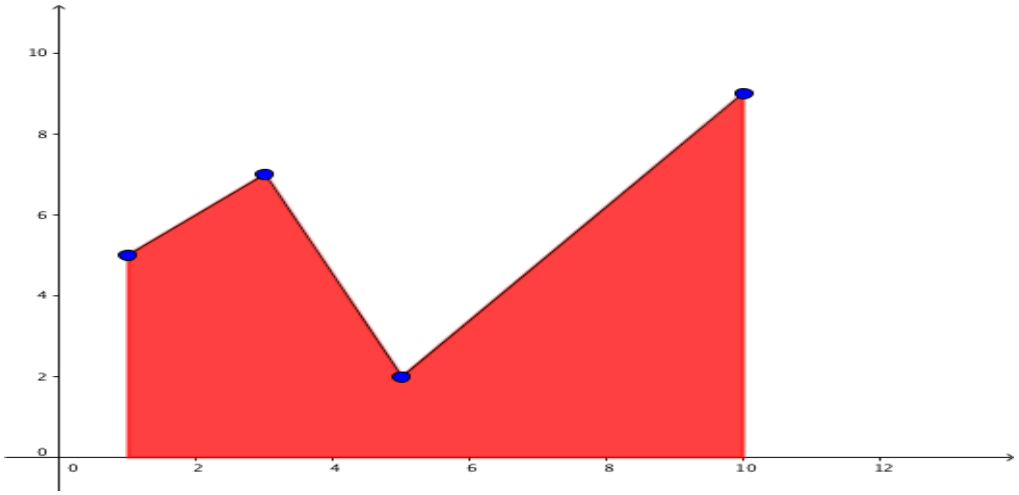

Figure 2: An example integral of a polygonal chain.

If we restrict ourselves to looking at polygonal chains where $x_0 < x_1 < ... < x_N$, we can then define the integral of this polygonal chain as the area between the x-axis and the polygonal chain between x_0 and x_N.

Given a polygonal chain, can you compute its integral?

Input

The input will begin with a line containing a single positive integer, t, representing the number of test cases to process. Each test case will begin with an integer N ($2 \leq N \leq 10,000$), the number of points in the polygonal chain. Following will be N lines giving the polygonal chain. The i-th line will be of the form "x_i y_i" ($0 \leq x_i, y_i \leq 10,000$, x_i and y_i are both integers). It is guaranteed that $x_i < x_{i+1}$ for all i.

Output

For each test case print the area between the given polygonal chain and the x-axis rounded to two decimal places on its own line.

Sample Input	Sample Output
1 4 1 5 3 7 5 2 10 9	48.50