**PROBLEM**: Given a triangle and a line that divides it into a triangle and a quadrilateral, find the area of the small triangle.

In the diagram below, line DE intersects triangle ABC along sides AB and AC. The area of the small triangle is 7.5

**USEFUL FORMULAE:** The distance between the point at and the point at is:

The area of a triangle with sides of length , , and , and

semi-perimeter , where , is given by Heron’s Formula:

**INPUT:**  The first line will consist of *N*, followed by *N* ordered pairs of integers. These will represent points A, B, C, D, etc. in the plane. There will then 10 lines, each containing two strings: the vertices of a triangle followed by two points forming a line. The points in sample data below corresponds to the 5 points in the diagram, plus a point F at (8,6).

We guarantee that each line will divide the triangle into two pieces: a triangle and a quadrilateral.

**OUTPUT**: For each of the 10 triangle/line pairs, report the area of the small triangle. Answers much match our answers to within one hundredth.

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| --- | --- |
| **SAMPLE INPUT:**   1. 6, 0, 0, 5, 5, 10, 0, 1, 6, 7, -3, 8, 6 2. ABC, DE 3. CBA, DE 4. ABC, FE 5. DEB, AF 6. EDB, AC 7. DAC, EB 8. BEF, CD 9. BEC, AF 10. ADC, EF 11. ABE, CD | **SAMPLE OUTPUT:**   1. 7.5 2. 7.5 3. 3.2 4. 7.961 5. 1.875 6. 5.625 7. 5.043 8. 0.282 9. 2.207 10. 1.25 |

**TEST DATA**

***Answers must match the numeric output to within 0.01.***

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| **TEST INPUT:**   1. 7, 0, 0, 8, 0, 2, 6, 8, 8, 5, 2, 5, 4, 7, 4 2. ABC, EG 3. CBA, FD 4. AFB, CE 5. ACD, BF 6. ADC, FG 7. CAD, EF 8. ABD, CF 9. BAD, FE 10. FEC, AD 11. FGB, AE |  | **TEST OUTPUT:**   1. 6.25 2. 10.2857 3. 10.5625 4. 5.4857 5. 5.3333 6. 3.0 7. 10.8 8. 12.5 9. 1.3714 10. 1.7902 |
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