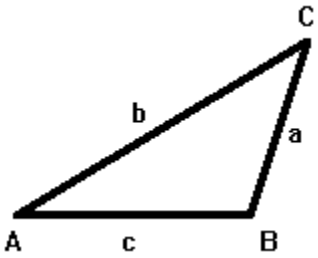
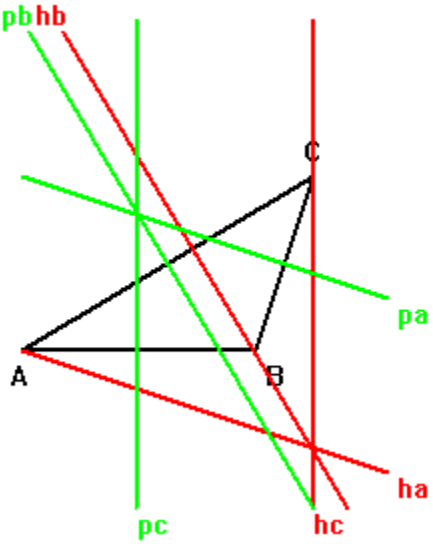
G • Three Triangles

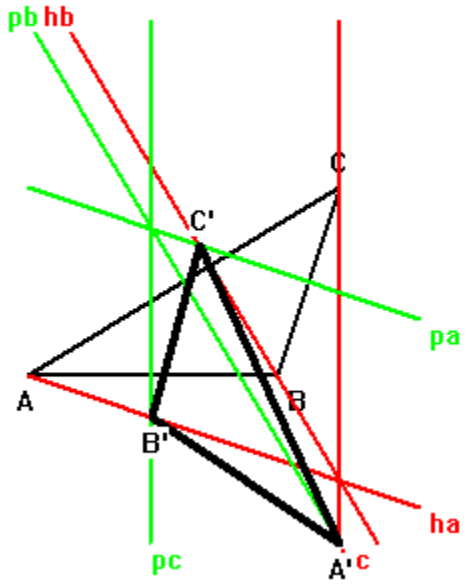
Starting with a Δ**ABC** with vertices **A**, **B**, **C** and sides **a**, **b**, **c** opposite **A**, **B**, **C**, respectively:



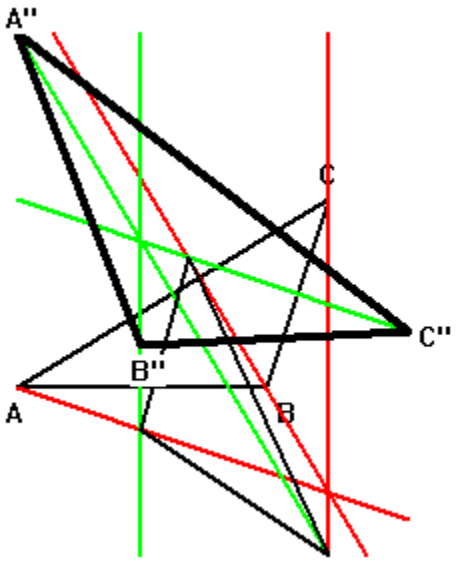
Construct the altitudes **ha**, **hb** and **hc** to sides **a**, **b**, **c** respectively (red) and the perpendicular bisectors **pa**, **pb** and **pc** to sides **a**, **b**, **c** (green):



Let **A'** = **hc** intersect **pb**, **B'** = **ha** intersect **pc** and **C'** = **hb** intersect **pa** yeilding a new Δ**A'B'C'** similar to **ABC** as shown on the next page.



Finally, let **A''** = reflection of **A'** in side **b**, **B''** = reflection of **B'** in side **c** and **C''** = reflection of **C'** in side **a** to obtain yet another similar triangle:



Write a program which takes as input the coordinates of the vertices **A**, **B** and **C** and outputs the areas of the three triangles.

Input

Input consists of a single line which contains three, space separated floating point values **Bx**, **Cx**, **Cy** in that order (**-1.0** <= **Bx**, **Cx**, **Cy** <= **10.0**). **ΔABC** will have area at least **1.0**. The coordinates system is chosen so that **A** = (**0**, **0**) is the origin and **B** = (**Bx**, **0**) lies on the **X**-axis. **C** = (**Cx**, **Cy**) is arbitrary.

Output

The output consists of a single line that contains three space separated floating point values to 4 decimal places. Area(**ΔABC**), Area(**ΔA'B'C'**) and Area(**ΔA"B"C"**) in that order.

Sample 1:

Sample Input	Sample Output
4.0 5.00 3.000	6.0000 4.8750 10.8750