CSCE 150 **Fall 2000**

Assignment #1

Implement a Fortran 90 program which does the following.

It calculates the area of a given triangle, the length of the smallest side, and the coordinates of the midpoint of the first side (*side AB below.)* Here is the desription:

Input: The three vertices of the triangle $A = (a_1, a_2)$, $B = (b_1, b_2)$, $C = (c_1, c_2)$. These vertices are entered as:

$$a_1 \ a_2 \ b_1 \ b_2 \ c_1 \ c_2$$

Now suppose that the calculated area is 56.9 inch^2. (Assume that the unit used is inch.) And assume that the length of the smallest side is 2.356 inch, and the coordinates of the midpoint of side AB are (2,-7). Then the output has to be in the following format:

The area of the triangle is: 56.9 inch square.

The length of the smallest side of the triangle is: 2.356 inch.

The coordinates of the midpoint of side AB are: (2,-7).

In your program, use the following variable names:

a1 for a_1 described above.

a2 for a_2 described above.

b1 for b_1 described above.

b2 for b_2 described above.

c1 for c_1 described above.

c2 for c_2 described above.

LengSideAB for the length of side AB,

LengSideBC for the length of side BC,

LengSideCA for the length of side CA,

ShortSide for the length of the shortest side.

MidPtABx for the x-coordinate of the midpoint of side AB,

MidPtABy for the y-coordinate of the midpoint of side AB,

HalfParam for half the parameter of the triangle.

TriangArea for the area of the triangle.

Remember: The area A of the triangle whose 3 sides are of length C, D, E, and whose parameter is P, is given by:

$$A = \sqrt{r(r-C)(r-D)(r-E)} \ ,$$

where $r = \frac{P}{2}$.

Do not forget to run and test your program.