Assignment No.1

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1 CHAPTER2,PROBLEM No:14.2

Problem Statement:Find the in-centres of the triangles whose vertices are as follows, (5,3), (5,-1), (-7,-6)

Solution

Given: A(5,3) ,B(5,-1), C(-7,-6)

To find in-centre now calculate unit length of each side of a triangle
Here

$$x_1 = 5 \qquad y_1 = 3$$
$$x_2 = 5 \qquad y_2 = -1$$
$$x_3 = -7 \qquad y_3 = -6$$

$$BC = a = \sqrt{(x_3 - x_2)^2 + (y_3 - y_2)^2}$$
$$= \sqrt{-12^2 + 5^2}$$
$$= 13$$

Similarly,

$$CA = b = 15$$
$$AB = c = 4$$

Now find in-centre of a triangle,

$$In - centre = (\frac{ax_1 + bx_2 + cx_3}{a+b+c}, \frac{ay_1 + by_2 + cy_3}{a+b+c})$$
$$= (\frac{65 + 75 - 28}{32}, \frac{39 - 15 - 24}{32})$$
$$= (3.5, 0)$$

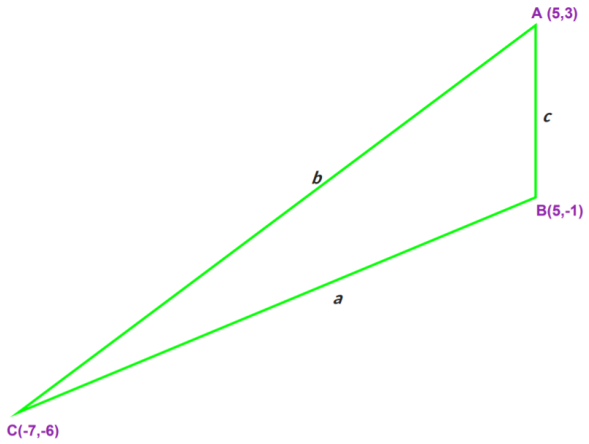

Fig. 1. A Triangle for given points