Assignment 3

Raghavendra Kulkarni

Find Python Codes from below link

https://github.com/RaghavendraKulkarni/internship/blob/main/Assignment3

and Latex codes from below link

https://github.com/RaghavendraKulkarni/internship/blob/main/Assignment3

1 Examples 2

1.1 Question 1

Find the area of the triangle of coordinates whose angular points are (5,2), (-9,-3), (-3,-5).

(1.1.1)

1.2 Solution

Area of the triangle

$$\frac{1}{2}\left|\left(A-B\right)\left(A-C\right)\right| \tag{1.2.1}$$

Let $\mathbf{A}=\begin{pmatrix}5\\2\end{pmatrix}, \mathbf{B}=\begin{pmatrix}-9\\-3\end{pmatrix}, \mathbf{C}=\begin{pmatrix}-3\\-5\end{pmatrix}$

$$\mathbf{A}-\mathbf{B}=\begin{pmatrix}5\\2\end{pmatrix}-\begin{pmatrix}-9\\-3\end{pmatrix} \tag{1.2.2}$$

$$=\begin{pmatrix}14\\5\end{pmatrix} \tag{1.2.3}$$

$$\mathbf{A}-\mathbf{C}=\begin{pmatrix}5\\2\end{pmatrix}-\begin{pmatrix}-3\\-5\end{pmatrix} \tag{1.2.4}$$

$$=\begin{pmatrix}8\\7\end{pmatrix} \tag{1.2.5}$$

From (1.2.1)

$$=\frac{1}{2}\begin{vmatrix}14 & 8\\5 & 7\end{vmatrix} \tag{1.2.6}$$

$$=\frac{1}{2}\left[\left(14\times7\right)-\left(5\times8\right)\right] \tag{1.2.7}$$

$$=\frac{1}{2}\left(98-40\right) \tag{1.2.8}$$

$$=\frac{1}{2}\left(58\right) \tag{1.2.9}$$

$$=29$$

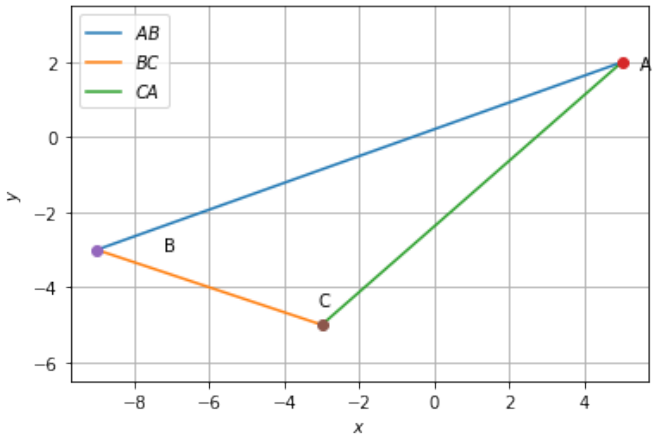

Fig. 0