

# Assignment 3

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Find Python Codes from below link

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

and Latex codes from below link

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## 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).

### 1.2 Solution

$$\frac{1}{2} |(A - B)(A - C)| \quad (1.2.1)$$

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

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

$$= \begin{pmatrix} 14 \\ 5 \end{pmatrix} \quad (1.2.3)$$

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

$$= \begin{pmatrix} 8 \\ 7 \end{pmatrix} \quad (1.2.5)$$

From (1.2.1)

Area of the triangle

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

$$= \frac{1}{2} [(14 \times 7) - (5 \times 8)] \quad (1.2.7)$$

$$= \frac{1}{2} (98 - 40) \quad (1.2.8)$$

$$= \frac{1}{2} (58) \quad (1.2.9)$$

$$= 29$$

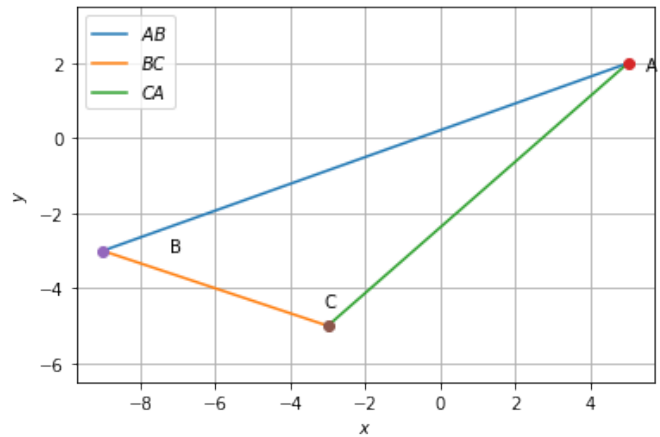


Fig. 0