Coordinate Geometry

uppadajaswanth@sriprakashschools.com

August 6, 2023

Class 10th Maths - Chapter 7

This is Problem-1.1 from Exercise 7.3

1. Find the area of the triangle whose vertices are:

$$(2,3), (-1,0), (2,-4) \tag{1}$$

Solution:
Given Data:

$$A = \begin{pmatrix} 2 \\ 3 \end{pmatrix} \tag{2}$$

$$B = \begin{pmatrix} -1 \\ 0 \end{pmatrix} \tag{3}$$

$$C = \begin{pmatrix} 2 \\ -4 \end{pmatrix} \tag{4}$$

$$\tag{5}$$

$$\mathbf{AB} = \begin{pmatrix} -3 \\ -3 \end{pmatrix} \tag{6}$$

$$\mathbf{BC} = \begin{pmatrix} 3 \\ -4 \end{pmatrix} \tag{7}$$

$$\tag{8}$$

AREA OF THE TRIANGLE:

$$\frac{1}{2} |\, (AB) \times (BC) \,|\tag{9}$$

$$\frac{1}{2} \begin{vmatrix} -3 & 3 \\ -3 & -4 \end{vmatrix}\tag{10}$$

$$\frac{1}{2} |12 + 9|\tag{11}$$

$$\frac{1}{2} |21|\tag{12}$$

$$\frac{21}{2} sq.units\tag{13}$$