

Coordinate Geometry

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10th Maths - Chapter 7

This is Problem-4 from Exercise 7.1

1. Check whether $(5, -2)$, $(6, 4)$ and $(7, -2)$ are the vertices of an isosceles triangle.

Solution: :

Given,

$$\mathbf{A} = \begin{pmatrix} 5 \\ -2 \end{pmatrix} \quad (1)$$

$$\mathbf{B} = \begin{pmatrix} 6 \\ 4 \end{pmatrix} \quad (2)$$

$$\mathbf{C} = \begin{pmatrix} 7 \\ -2 \end{pmatrix} \quad (3)$$

$$\mathbf{AB} = \begin{pmatrix} 1 \\ 6 \end{pmatrix} \quad (4)$$

$$\|AB\| = \sqrt{(1)^2 + (6)^2} \quad (5)$$

$$= \sqrt{37} \quad (6)$$

$$\|BC\| = \sqrt{(1)^2 + (-6)^2} \quad (7)$$

$$= \sqrt{37} \quad (8)$$

$$\|CA\| = \sqrt{(2)^2 + 0} \quad (9)$$

$$= \sqrt{4} \quad (10)$$

$$(11)$$

since, $|AB|=|BC|=\sqrt{37}$, they are isosceles triangle

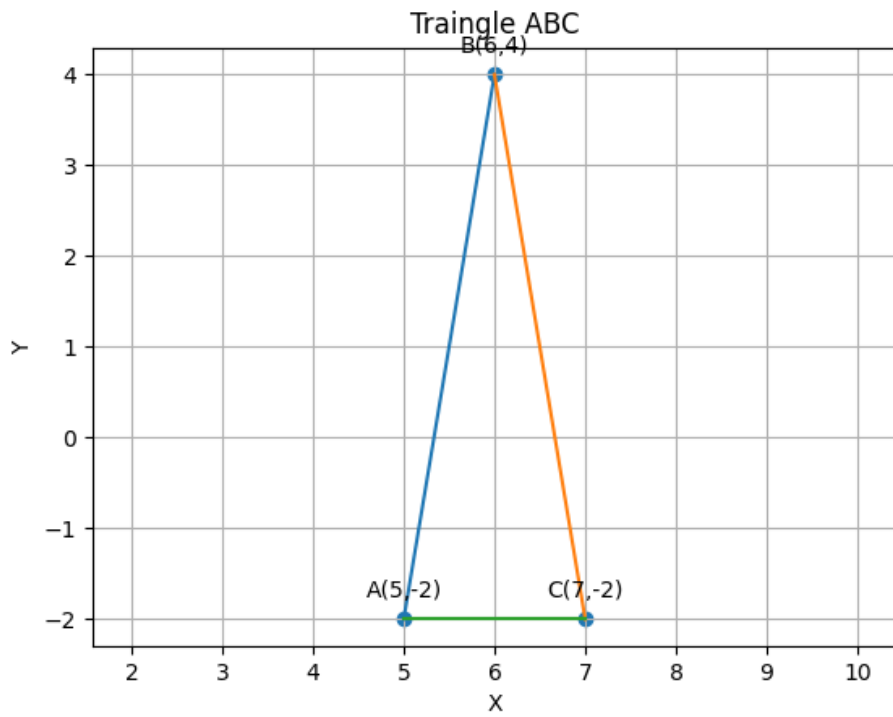


Figure 1: Triangle ABC