Presentation - Matgeo

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Problem Statement

Find the area of triangle with vertices (2,0), (1,4), (4,5)

Solution

Points	Vector
A	$\begin{pmatrix} 2 \\ 0 \end{pmatrix}$
B	$\begin{pmatrix} 4 \\ 5 \end{pmatrix}$
C	$\begin{pmatrix} 1 \\ 4 \end{pmatrix}$

Solution

$$\mathbf{A}-\mathbf{B}=\begin{pmatrix}-2\\-5\end{pmatrix} \tag{1.1}$$

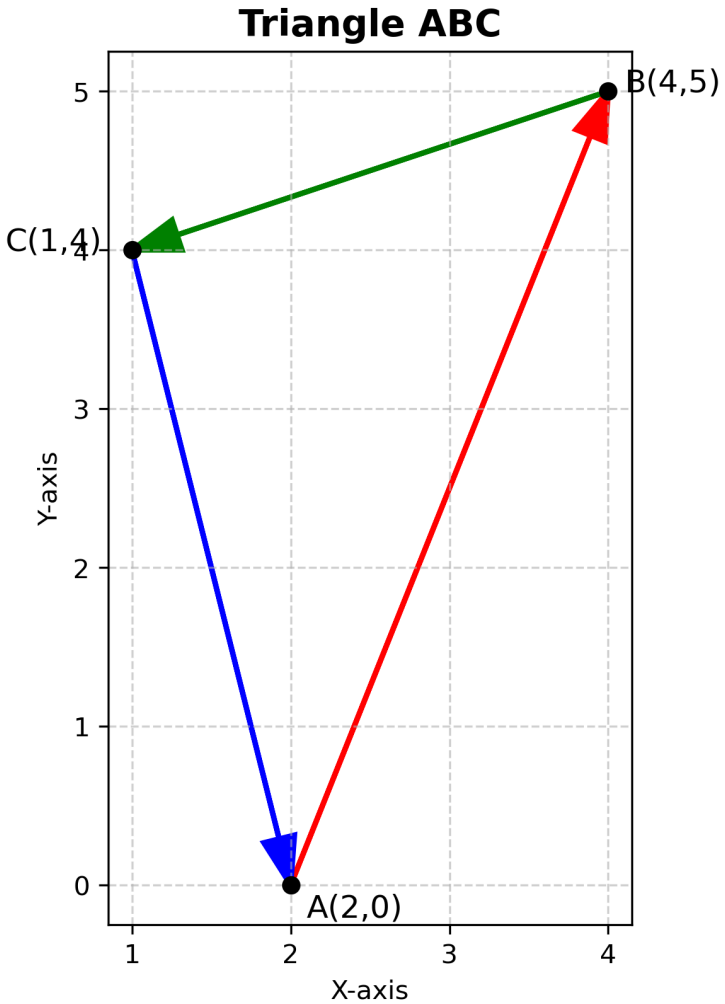
$$\mathbf{A}-\mathbf{C}=\begin{pmatrix}1\\-4\end{pmatrix} \tag{1.2}$$

Area of triangle formed by the given points

$$\frac{1}{2}\|(\mathbf{A}-\mathbf{B})\times(\mathbf{A}-\mathbf{C})\|=\frac{13}{2} \tag{1.3}$$

Area of formed by the given points is $\frac{13}{2}$ square units.

Ploting



Figure