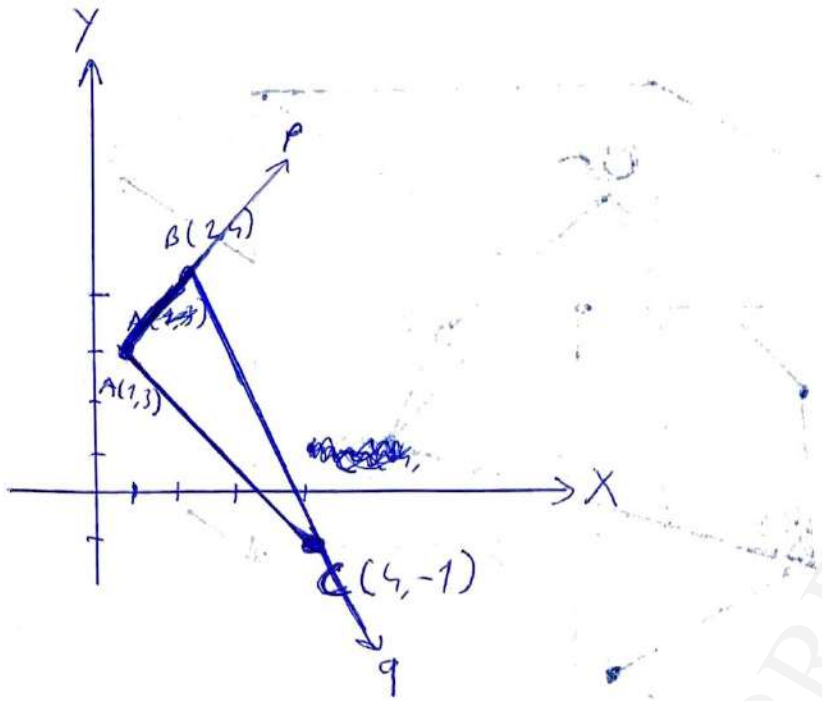
8)



$$proj_q(p) = \frac{p \cdot q}{|q|^2} \cdot q$$

$$\text{Distance} = \vec{BA} - proj_{\vec{BC}}(\vec{BA})$$

$p = \vec{AB} = B - A = (1,1)$ $\quad |p| = \sqrt{2}$

$q = \vec{BC} = C - B = (2,-5)$ $\quad |q| = \sqrt{29}$

Projection of p onto q

$$\frac{p \cdot q}{|q|^2} \cdot q = \frac{(2-5)}{\sqrt{29}^2} \cdot (2,-5) = \frac{-3}{29} \cdot (2,-5) = \left(\frac{-6}{29}, \frac{15}{29}\right)$$

$$proj_q(p) = \left(\frac{-6}{29}, \frac{15}{29}\right)$$

Distance of A to q ($\vec{BC}$)

$\vec{BA} = A - B = -p = (-1,-1)$

$$\vec{BA} - proj_q(\vec{BA}) = \vec{BA} - proj_q(-p) = \vec{BA} - \left(\frac{+6}{29}, \frac{-15}{29}\right) = (-1,-1) - \left(\frac{+6}{29}, \frac{-15}{29}\right) = \left(\frac{-35}{29}, \frac{-14}{29}\right)$$

$$\text{Distance} = \sqrt{\left(\frac{-35}{29}\right)^2 + \left(\frac{-14}{29}\right)^2} = \sqrt{\frac{1421}{(29)^2}} = \frac{7\sqrt{29}}{29}$$

Area $\quad \text{Distance} \times |\vec{BC}| \times \frac{1}{2}$

$$\frac{7\sqrt{29}}{29} \times \sqrt{29} \times \frac{1}{2} = \frac{7}{2} = \boxed{3,5}$$