⑤ $A(3,1), B(12,-2), C(0,2)$

$$\text{ar}\,\triangle ABC = \frac{1}{2}\begin{vmatrix} 0 & 2 \\ 3 & 1 \\ 12 & -2 \\ 0 & 2 \end{vmatrix}$$

$$= \frac{1}{2}|0 - 6 - 6 - 12 + 24 + 0|$$

$$= \frac{1}{2}|0|$$

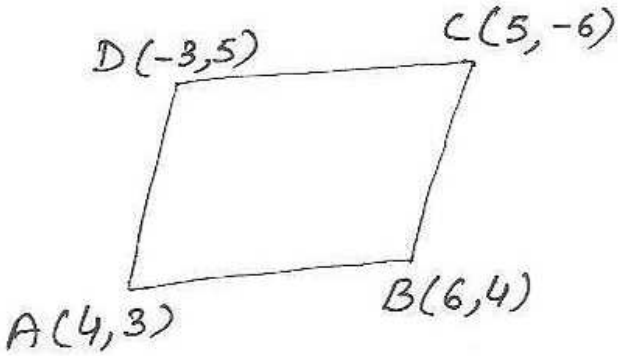
$$= 0$$

$\because \text{ar}(\triangle ABC) = 0$

$\therefore$ Pts are collinear

A, B, C cannot be vertices of $\triangle$ True

⑥



let $E(x_1, y_1)$ be midpt of AC

$$\therefore x_1 = \frac{4+5}{2} = \frac{9}{2} \quad \Big| \quad y_1 = \frac{3+(-6)}{2} = -\frac{3}{2}$$

$$E\left(\frac{9}{2}, -\frac{3}{2}\right)$$

let $F(x_2, y_2)$ be midpoint of BD

$$\therefore x_2 = \frac{-3+6}{2} = \frac{3}{2} \quad \Big| \quad y_2 = \frac{5+4}{2} = \frac{9}{2}$$

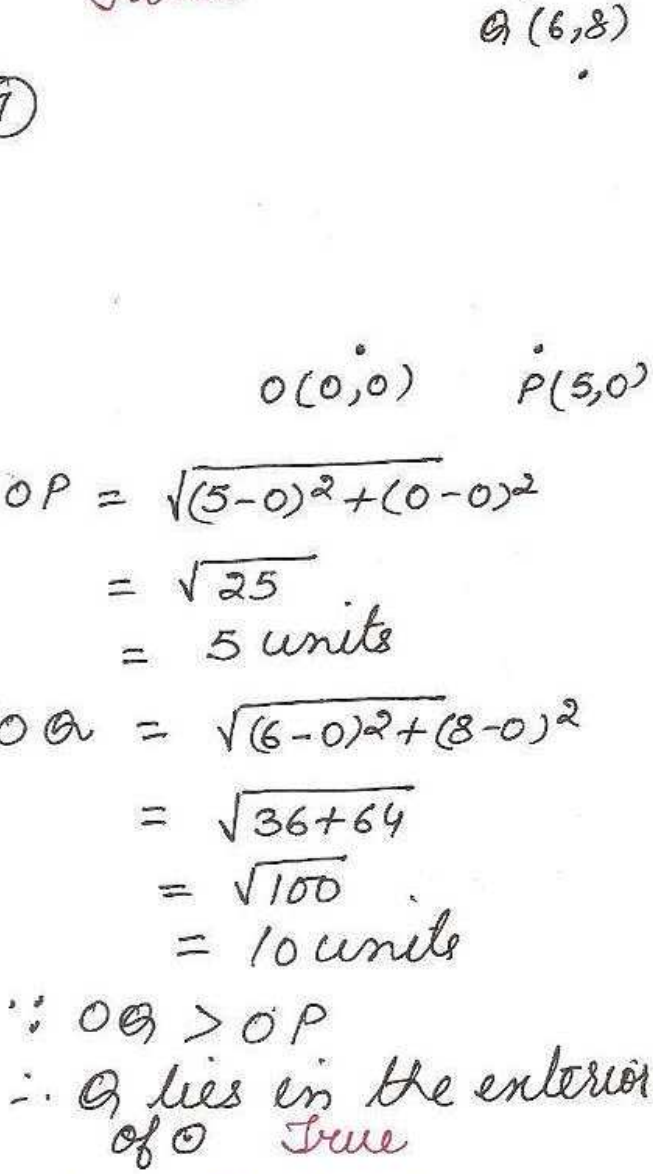
$$F\left(\frac{3}{2}, \frac{9}{2}\right)$$

$\because$ E, F do not coincide

$\therefore$ AC and BD donot bisect each other

False

⑦



$$OP = \sqrt{(5-0)^2 + (0-0)^2}$$

$$= \sqrt{25}$$

$$= 5 \text{ units}$$

$$OQ = \sqrt{(6-0)^2 + (8-0)^2}$$

$$= \sqrt{36+64}$$

$$= \sqrt{100}$$

$$= 10 \text{ units}$$

$\because OQ > OP$

$\therefore$ Q lies in the exterior of $\odot$ True