

⑤ $A(3,1), B(12,-2), C(0,2)$

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

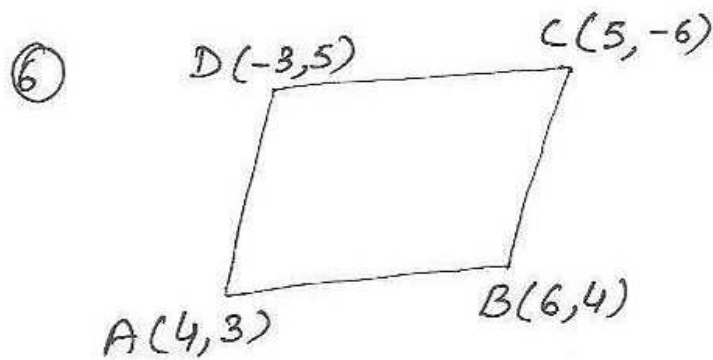
$$= \frac{1}{2} |0 - 6 - 6 - 12 + 24 + 0|$$

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

$$= 0$$

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

\therefore pts are collinear
 A, B, C cannot be
 vertices of \triangle **True**



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

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

$$= \frac{9}{2} \quad \left| \quad = -\frac{3}{2}\right.$$

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

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

$$\therefore x_2 = \frac{-3+6}{2} \quad \left| \quad y_2 = \frac{5+4}{2}\right.$$

$$= \frac{3}{2} \quad \left| \quad = \frac{9}{2}\right.$$

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

$\therefore E, F$ do not coincide
 $\therefore AC$ and BD do not
 bisect each other
False

$$Q(6,8)$$

⑦

$$O(0,0) \quad P(5,0)$$

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

$$= \sqrt{25}$$

$$= 5 \text{ units}$$

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

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

$$= \sqrt{100}$$

$$= 10 \text{ units}$$

$$\therefore OQ > OP$$

$\therefore Q$ lies in the exterior
 of O **True**