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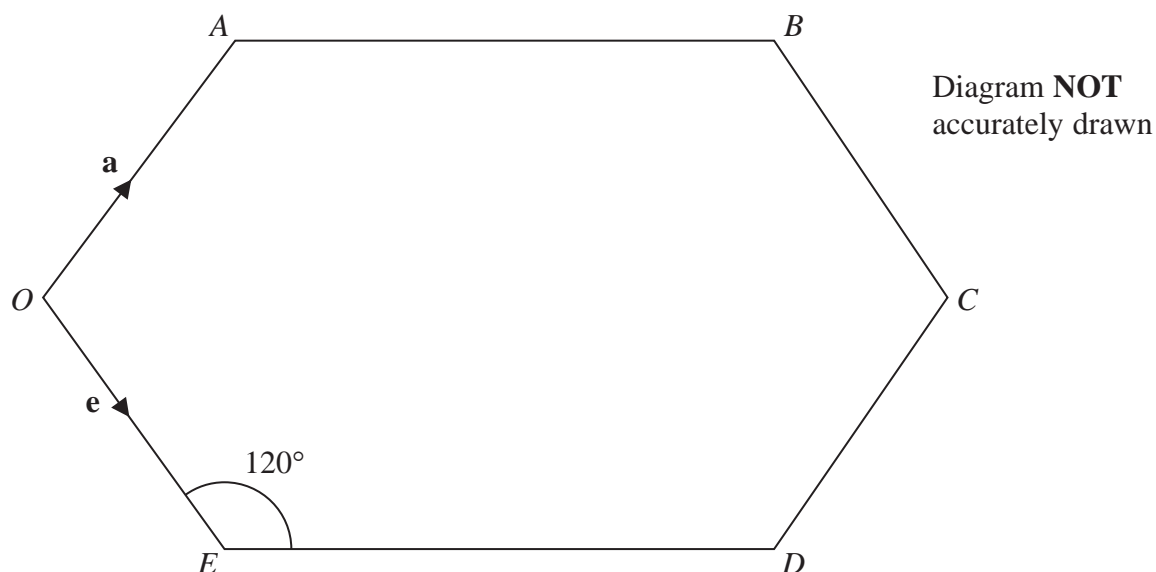


Figure 4

Figure 4 shows a hexagon $OABCDE$. Each internal angle of the hexagon is 120° .

$$OA = OE, \quad AB = ED = 2 \times OA \quad \text{and} \quad OC = 3 \times OA$$

$$\vec{OA} = \mathbf{a} \quad \text{and} \quad \vec{OE} = \mathbf{e}.$$

Find as simplified expressions in terms of \mathbf{a} and \mathbf{e}

(a) \vec{AB} , (2)

(b) \vec{BE} . (2)

The point P divides AB internally in the ratio 2:3

(c) Find \vec{PC} as a simplified expression in terms of \mathbf{a} and \mathbf{e} . (3)

The point Q lies on ED produced so that the points P , C and Q are collinear.

(d) Find \vec{OQ} in the form $\lambda\mathbf{a} + \mu\mathbf{e}$, stating the value of λ and the value of μ . (6)

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Question 8 continued



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