

10

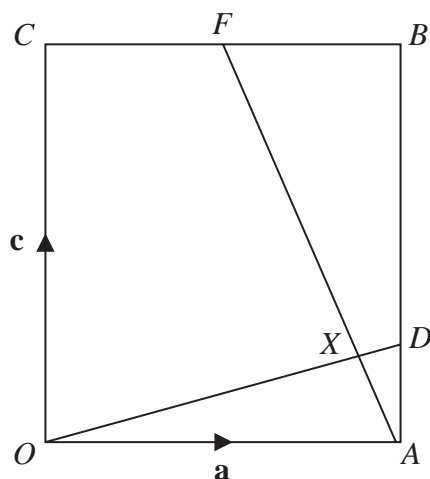
Diagram NOT
accurately drawn

Figure 3

Figure 3 shows a rectangle $OABC$ in which $\vec{OA} = \mathbf{a}$ and $\vec{OC} = \mathbf{c}$

F is the midpoint of CB and D is the point on AB such that $AD:DB = 2:3$

(a) Find

- (i) \vec{CF} in terms of \mathbf{a} (ii) \vec{AD} in terms of \mathbf{c}

(2)

The lines OD and AF intersect at the point X

Given that $\vec{OX} = \lambda \vec{OD}$ and $\vec{AX} = \mu \vec{AF}$, where λ and μ are scalars,

(b) find the value of λ and the value of μ

(7)

Given that $OX:XD = n:1$

(c) find the value of n

(1)

Given also that $|\mathbf{a}| = 12 \text{ cm}$ and $|\mathbf{c}| = 12.5 \text{ cm}$,

(d) find the area, in cm^2 , of quadrilateral $XDBF$

(4)

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Question 10 continued

Handwriting practice area with horizontal dotted lines.



P 6 6 3 1 1 A 0 3 5 4 0

Question 10 continued

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Question 10 continued

Handwriting practice area with horizontal dotted lines.

(Total for Question 10 is 14 marks)

