

10

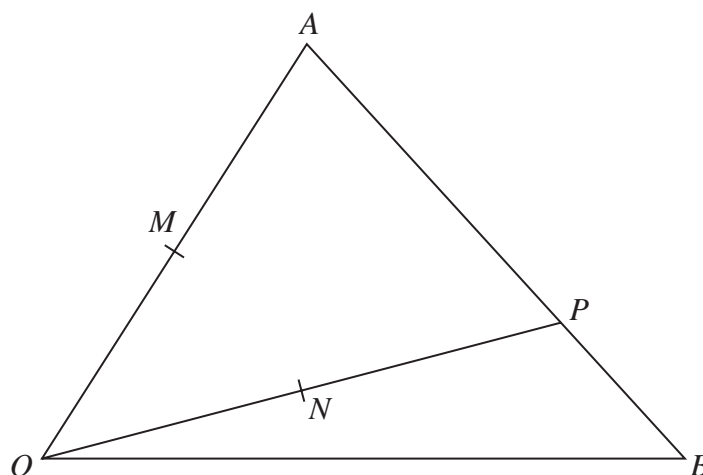
Diagram **NOT**
accurately drawn

Figure 4

Figure 4 shows triangle OAB in which

$$\overrightarrow{OA} = \mathbf{a} \text{ and } \overrightarrow{OB} = \mathbf{b}$$

The point P lies on AB such that $AP:PB = 3:1$ The point M is the midpoint of OA and the point N is the midpoint of OP .(a) Find, as simplified expressions in terms of \mathbf{a} and \mathbf{b} , the vector

(i) \overrightarrow{OP} (ii) \overrightarrow{MN}

(4)

The point C lies on OB such that ANC is a straight line.(b) Using a vector method, find the vector \overrightarrow{OC} as a simplified expression in terms of \mathbf{b}

(6)

Given that $\frac{\text{area of quadrilateral } AMNP}{\text{area of triangle } OAB} = K$ (c) find the exact value of K

(4)

.....

.....

.....

.....

.....

.....

.....

.....



Question 10 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Area for writing answers to Question 10 continued. The area is ruled with horizontal dotted lines.



P 7 1 6 6 1 A 0 3 1 3 2

Question 10 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 10 is 14 marks)**TOTAL FOR PAPER IS 100 MARKS**