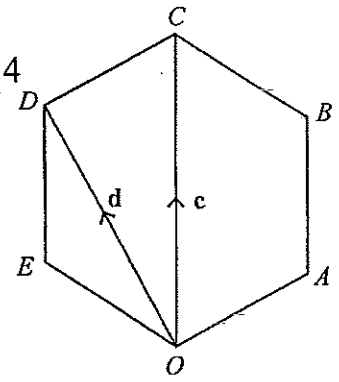
IGCSE – Vectors Paper 4 - 1

5

May 05 Paper 4



NOT TO SCALE

OABCDE is a regular hexagon.
With *O* as origin the position vector of *C* is **c** and the position vector of *D* is **d**.

(a) Find, in terms of **c** and **d**,

(i) $\overrightarrow{DC}$, [1]

(ii) $\overrightarrow{OE}$, [2]

(iii) the position vector of *B*. [2]

(b) The sides of the hexagon are each of length 8 cm.

Calculate

(i) the size of angle *ABC*, [1]

(ii) the area of triangle *ABC*, [2]

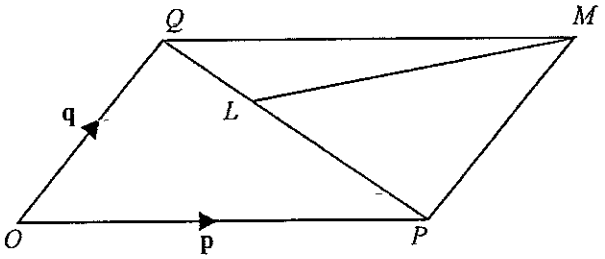
(iii) the length of the straight line *AC*, [3]

(iv) the area of the hexagon. [3]

6 **(a)**

Oct 06 Paper 4

NOT TO SCALE



OPMQ is a parallelogram and *O* is the origin.
$\overrightarrow{OP} = \mathbf{p}$ and $\overrightarrow{OQ} = \mathbf{q}$.
L is on *PQ* so that $PL : LQ = 2:1$.

Find the following vectors in terms of **p** and **q**. Write your answers in their simplest form.

(i) $\overrightarrow{PQ}$, [1]

(ii) $\overrightarrow{PL}$, [1]

(iii) $\overrightarrow{ML}$, [2]

(iv) the position vector of *L*. [2]

(b) *R* is the point (1,2). It is translated onto the point *S* by the vector $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$.

(i) Write down the co-ordinates of *S*. [1]

(ii) Write down the vector which translates *S* onto *R*. [1]