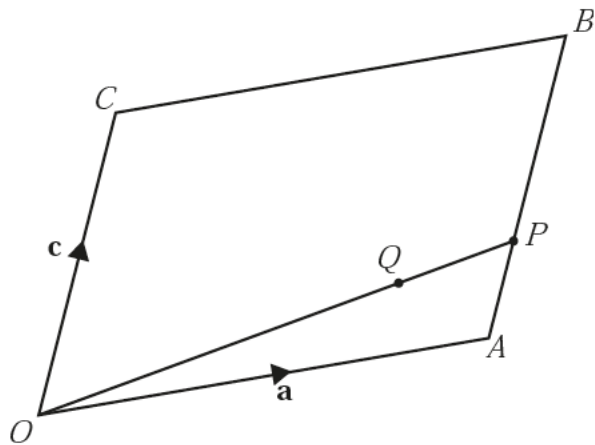


7 In this question you must show detailed reasoning.



The diagram shows a parallelogram $OABC$. The position vectors of A and C are $\mathbf{a}$ and $\mathbf{c}$ respectively.

- The point P lies on AB such that $AP = \frac{1}{3}AB$.
- The point Q lies on OP such that $OQ = \frac{3}{4}OP$.

(a) Show that $\overrightarrow{OQ} = \frac{3}{4}\mathbf{a} + \frac{1}{4}\mathbf{c}$.

[4]

(b) Hence show that Q lies on AC .

[3]