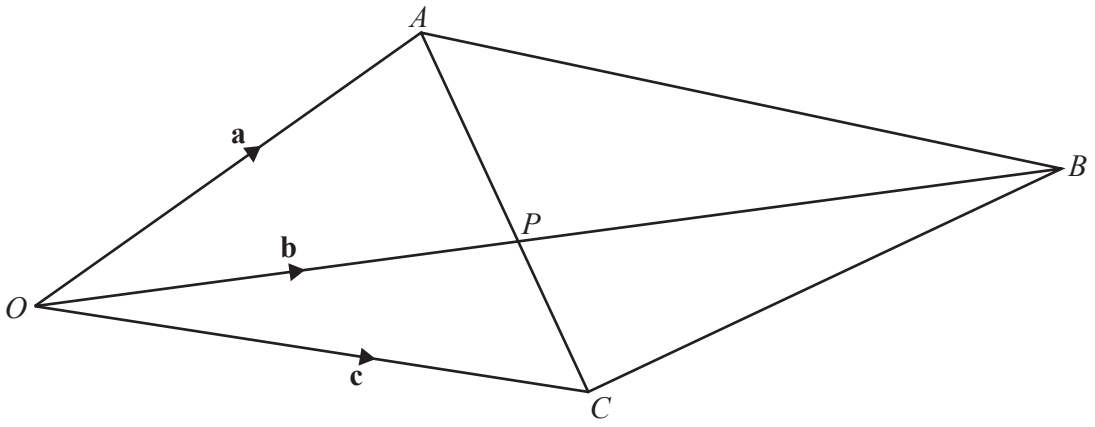
3



The diagram shows the quadrilateral $OABC$ such that $\overrightarrow{OA} = \mathbf{a}$, $\overrightarrow{OB} = \mathbf{b}$ and $\overrightarrow{OC} = \mathbf{c}$. The lines OB and AC intersect at the point P, such that $AP : PC = 3 : 2$.

(a) Find $\overrightarrow{OP}$ in terms of $\mathbf{a}$ and $\mathbf{c}$. [3]

(b) Given also that $OP : PB = 2 : 3$, show that $2\mathbf{b} = 3\mathbf{c} + 2\mathbf{a}$. [2]

4 A curve is such that $\frac{d^2y}{dx^2} = (3x+2)^{-\frac{1}{3}}$. The curve has gradient 4 at the point $(2, 6.2)$. Find the equation of the curve. [6]

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