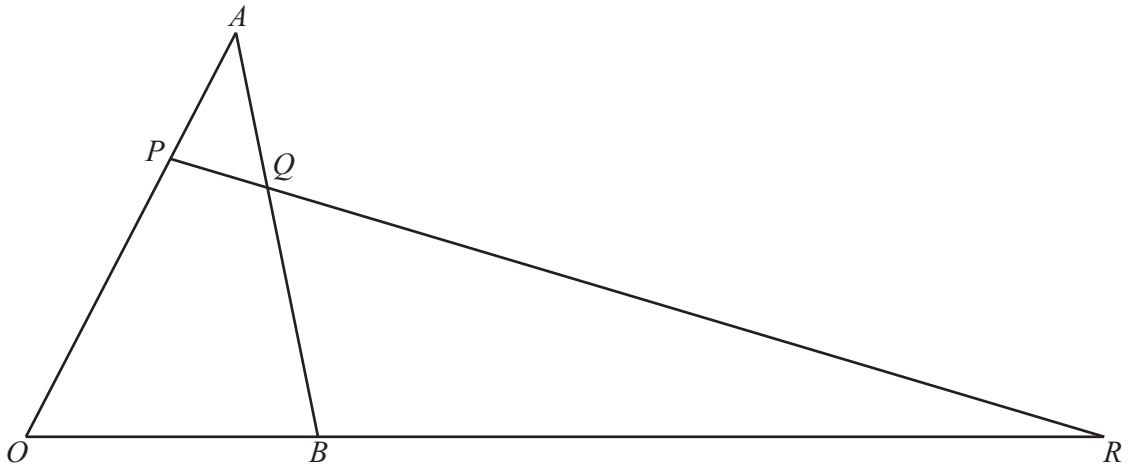
11



The diagram shows the triangle OAB, where $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$.

The point P lies on OA such that $\overrightarrow{OP} = \frac{3}{4}\overrightarrow{OA}$.

The point Q lies on AB such that $\overrightarrow{AQ} = \frac{1}{3}\overrightarrow{AB}$.

The straight line through P and Q meets the straight line through O and B at the point R.
It is given that $\overrightarrow{OR} = \lambda\mathbf{b}$ and $\overrightarrow{PR} = \mu\overrightarrow{PQ}$, where λ and μ are constants.

(a) Find $\overrightarrow{OR}$ in terms of **a**, **b** and μ. [6]

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(b) Hence find the values of λ and μ. [3]

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Question 12 is printed on the next page.

12 A curve is such that its gradient at the point (x, y) is given by $(5x-2)^{\frac{1}{3}}$.

The curve passes through the point $\left(2, \frac{32}{5}\right)$.

Find the coordinates of the stationary point on the curve. [6]

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