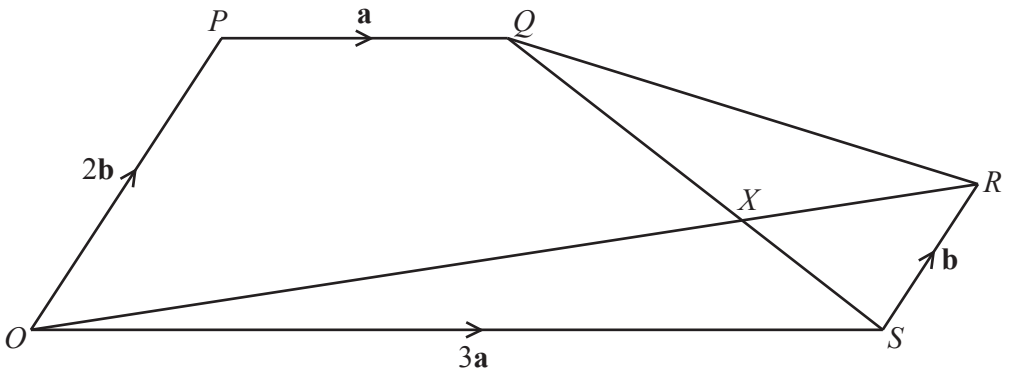
9



In the diagram $\overrightarrow{OP} = 2\mathbf{b}$, $\overrightarrow{OS} = 3\mathbf{a}$, $\overrightarrow{SR} = \mathbf{b}$ and $\overrightarrow{PQ} = \mathbf{a}$. The lines OR and QS intersect at X.

(a) Find $\overrightarrow{OQ}$ in terms of **a** and **b**. [1]

(b) Find $\overrightarrow{QS}$ in terms of **a** and **b**. [1]

(c) Given that $\overrightarrow{QX} = \mu\overrightarrow{QS}$, find $\overrightarrow{OX}$ in terms of **a**, **b** and μ. [1]

(d) Given that $\overrightarrow{OX} = \lambda\overrightarrow{OR}$, find $\overrightarrow{OX}$ in terms of **a**, **b** and λ. [1]

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(e) Find the value of λ and of μ. [3]

(f) Find the value of $\frac{QX}{XS}$. [1]

(g) Find the value of $\frac{OR}{OX}$. [1]