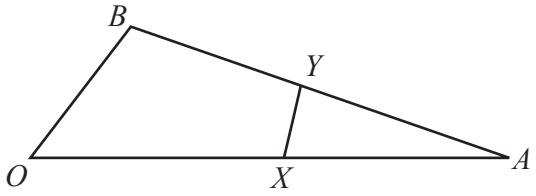
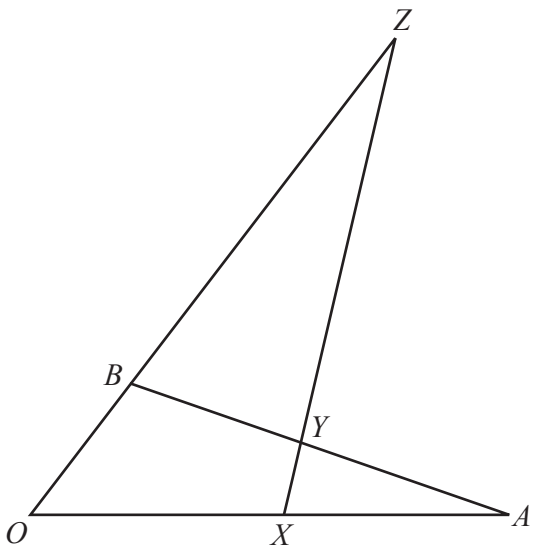
8



The diagram shows the triangle OAB with $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$. The point X lies on the line OA such that $\overrightarrow{OX} = \frac{3}{5}\mathbf{a}$. The point Y is the mid-point of the line AB. Find, in terms of **a** and **b**,

(a) $\overrightarrow{AB}$ [1]

(b) $\overrightarrow{XY}$. [2]



The lines OB and XY are extended to meet at the point Z. It is given that $\overrightarrow{YZ} = \lambda\overrightarrow{XY}$ and $\overrightarrow{BZ} = \mu\mathbf{b}$.

© UCLES 2023

(c) Find $\overrightarrow{XZ}$ in terms of λ, **a** and **b**. [2]

(d) Find $\overrightarrow{XZ}$ in terms of μ, **a** and **b**. [2]

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