**3**

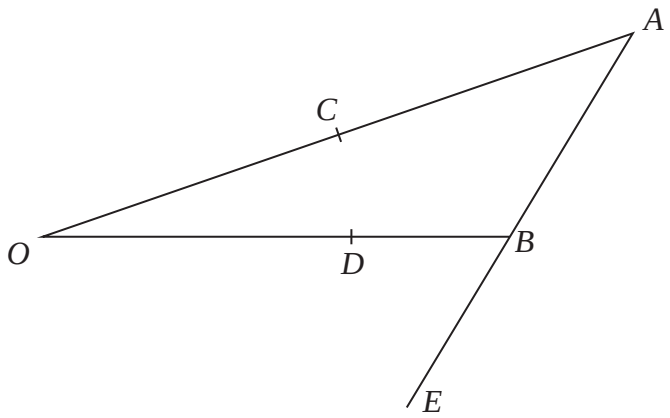


Diagram **NOT** accurately drawn

**Figure 1**

In Figure 1, $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$

The point $C$ is the midpoint of $OA$ and the point $D$ divides $OB$ in the ratio $2 : 1$

(a) Find $\overrightarrow{CD}$ in terms of **a** and **b**

**(2)**

The point $E$ lies on $AB$ produced such that $\overrightarrow{OE} = 2\mathbf{b} - \mathbf{a}$

(b) Find $\overrightarrow{CE}$ in terms of **a** and **b**

**(2)**

(c) Hence show that $C$, $D$ and $E$ are collinear.

**(2)**

**Question 3 continued**

**(Total for Question 3 is 6 marks)**