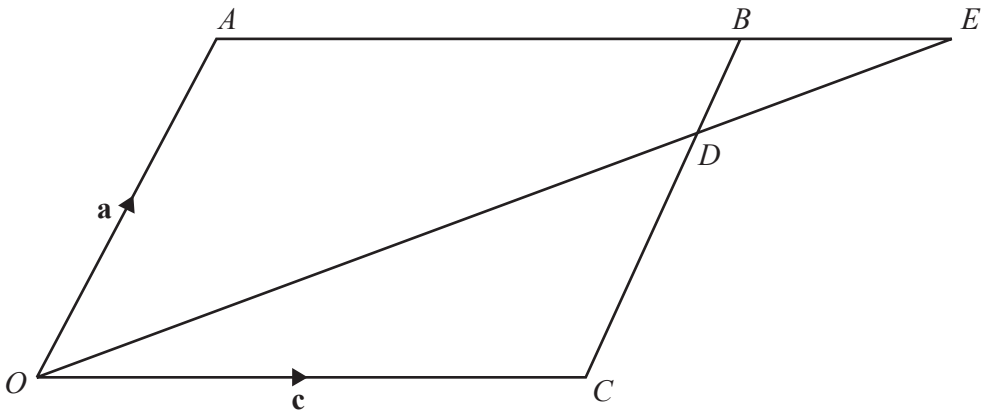
10



The diagram shows the parallelogram $OABC$, such that $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OC} = \mathbf{c}$. The point D lies on CB such that $CD : DB = 3 : 1$. When extended, the lines AB and OD meet at the point E. It is given that $\overrightarrow{OE} = h\overrightarrow{OD}$ and $\overrightarrow{BE} = k\overrightarrow{AB}$, where h and k are constants.

(a) Find $\overrightarrow{DE}$ in terms of **a**, **c** and h. [4]

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(b) Find $\overrightarrow{DE}$ in terms of **a**, **c** and k. [1]

(c) Hence find the value of h and of k. [4]