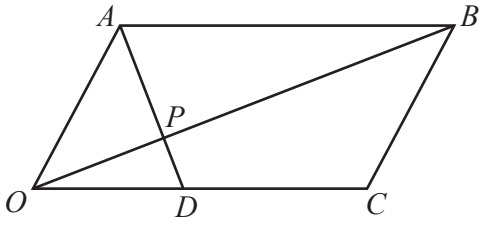
10



The diagram shows a parallelogram $OABC$. The point D divides the line OC in the ratio 2 : 3.

$$\overrightarrow{OA} = \mathbf{a} \text{ and } \overrightarrow{OC} = \mathbf{c}$$

The point P lies on AD such that $\overrightarrow{OP} = \lambda\overrightarrow{OB}$ and $\overrightarrow{AP} = \mu\overrightarrow{AD}$, where λ and μ are scalars.

Find two expressions for $\overrightarrow{OP}$, each in terms of **a**, **c** and a scalar, and hence show that P divides both DA and OB in the ratio m : n, where m and n are integers to be found. [7]

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