12 Solutions to this question by accurate drawing will not be accepted.

Relative to an origin O, the position vectors of the points A, B and C are $\overrightarrow{OA} = \begin{pmatrix} 1 \\ 7 \end{pmatrix}$, $\overrightarrow{OB} = \begin{pmatrix} 7 \\ 4 \end{pmatrix}$ and $\overrightarrow{OC} = k\begin{pmatrix} 1 \\ 2 \end{pmatrix}$, where k is a scalar constant.

Given that C lies on the line AB, use a vector method to find the ratio $AC : AB$. [6]

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