Higher Maths
SQA 2021 Paper 2
Question 13

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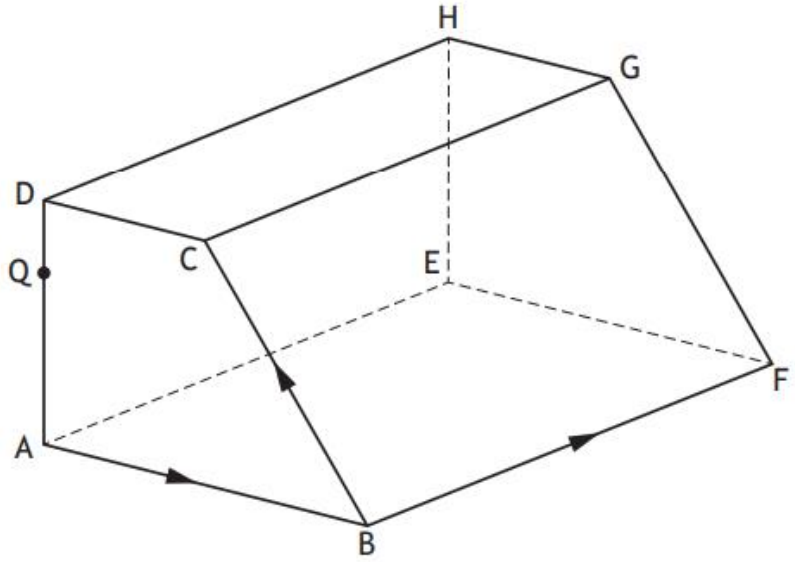
ABCD,EFGH is a prism.



- $\overrightarrow{AB} = \begin{pmatrix} 8 \\ -4 \\ 6 \end{pmatrix}$, $\overrightarrow{BC} = \begin{pmatrix} -7 \\ 5 \\ 3 \end{pmatrix}$ and $\overrightarrow{BF} = \begin{pmatrix} 7 \\ 11 \\ -2 \end{pmatrix}$.
- $\overrightarrow{AB} = 2\overrightarrow{DC}$.

(a) Express $\overrightarrow{CF}$ in component form. **1**

(b) Hence, or otherwise, express $\overrightarrow{DF}$ in component form. **1**

(c) The point Q lies on the line AD.

Given that $\overrightarrow{QF} = \begin{pmatrix} 17 \\ 5 \\ 0 \end{pmatrix}$, find $\overrightarrow{QD}$. **2**

Answers:

(a) $\begin{pmatrix} 14 \\ 6 \\ -5 \end{pmatrix}$ (b) $\begin{pmatrix} 18 \\ 4 \\ -2 \end{pmatrix}$ (c) $\begin{pmatrix} -1 \\ 1 \\ 2 \end{pmatrix}$

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