

11 SPEC VECTORS 17A&B QUICK CHECK

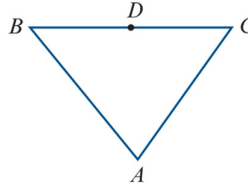
Question 1

Let A , B and C be the vertices of a triangle, and let D be the midpoint of BC .

Let $\mathbf{a} = \overrightarrow{AB}$ and $\mathbf{b} = \overrightarrow{BC}$.

Find each of the following in terms of \mathbf{a} and \mathbf{b} :

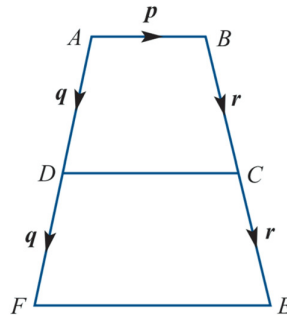
- a** \overrightarrow{BD} **b** \overrightarrow{DC} **c** \overrightarrow{AC}
d \overrightarrow{AD} **e** \overrightarrow{CA}



Question 2

In the figure, $\overrightarrow{DC} = k\mathbf{p}$ where $k \in \mathbb{R} \setminus \{0\}$.

- a** Express \mathbf{p} in terms of k , \mathbf{q} and \mathbf{r} .
b Express \overrightarrow{FE} in terms of k and \mathbf{p} to show that FE is parallel to DC .
c If $\overrightarrow{FE} = 4\overrightarrow{AB}$, find the value of k .



Question 3

Find \vec{AB} if $\vec{OA} = 3i$ and $\vec{OB} = 2i - j$. **b** Find $|2i - 3j|$.

Question 4

Let A and B be points on the Cartesian plane such that $\vec{OA} = 2i + j$ and $\vec{OB} = i - 3j$.
Find \vec{AB} and $|\vec{AB}|$.

Question 5

Let $\mathbf{a} = 3i + 4j$.

Find $|\mathbf{a}|$, the magnitude of \mathbf{a} , and hence find the unit vector in the direction of \mathbf{a} .