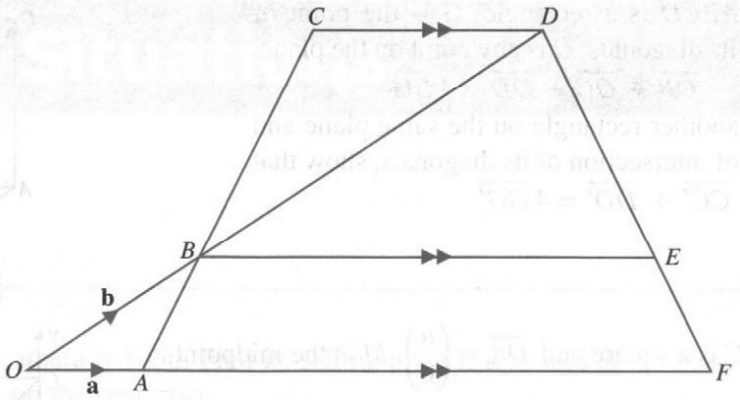
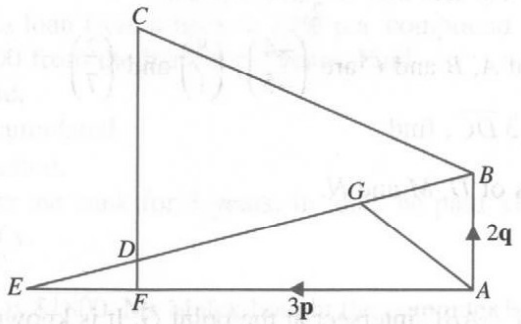
25. In the diagram, OAF is a straight line and $OF \parallel BE \parallel CD$. The lines AC and OD intersect at B, $DE = 2EF$, $OF = 6OA$, $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$.



(a) Express each of the following vectors in terms of **a** and/or **b**.
- **(i)** $\overrightarrow{DF}$
- **(ii)** $\overrightarrow{BE}$
- **(iii)** $\overrightarrow{BC}$
- **(iv)** $\overrightarrow{CF}$

(b) Find the ratio of the areas of
- **(i)** $\triangle BCD : \triangle BED$,
- **(ii)** $\triangle OAB : \triangle BED$,
- **(iii)** $\triangle BED : ABEF$.

26. In the diagram, F and G are points on the lines AE and BE respectively. The lines BE and CF intersect at D and $AB \parallel FC$. $AB : FC = 4 : 9$, $EF : EA = BG : BE = 1 : 4$, $\overrightarrow{AB} = 2\mathbf{q}$ and $\overrightarrow{AF} = 3\mathbf{p}$.



(a) Express each of the following vectors in terms of **p** and **q**.
- **(i)** $\overrightarrow{EB}$
- **(ii)** $\overrightarrow{AC}$
- **(iii)** $\overrightarrow{EG}$
- **(iv)** $\overrightarrow{AG}$

(b) Show that A, G and C lie on the same straight line.

(c) Hence, find the ratio $AG : AC$.

(d) Find the ratio of the areas of
- **(i)** $\triangle EDF : ABDF$,
- **(ii)** $\triangle EDF : \triangle ABG$.