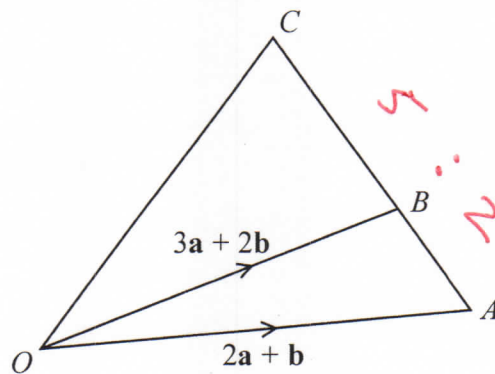


27

Diagram NOT  
accurately drawn $ABC$  is a straight line.

$$AB:BC = 2:5$$

$$\vec{OA} = 2\mathbf{a} + \mathbf{b}$$

$$\vec{OB} = 3\mathbf{a} + 2\mathbf{b}$$

Express  $\vec{OC}$  in terms of  $\mathbf{a}$  and  $\mathbf{b}$ .  
Give your answer in its simplest form.

$$\begin{aligned} \vec{AB} &= \vec{AO} + \vec{OB} \\ &= -2\mathbf{a} - \mathbf{b} + 3\mathbf{a} + 2\mathbf{b} \end{aligned}$$

$$\vec{AB} = \mathbf{a} + \mathbf{b}$$

$$\vec{AC} = \frac{7}{2}(\mathbf{a} + \mathbf{b})$$

$$\begin{aligned} \vec{OC} &= \vec{OA} + \vec{AC} \\ &= 2\mathbf{a} + \mathbf{b} + \frac{7}{2}\mathbf{a} + \frac{7}{2}\mathbf{b} \\ &= \frac{11}{2}\mathbf{a} + \frac{9}{2}\mathbf{b} \end{aligned}$$

(Total for Question 27 is 4 marks)

