12

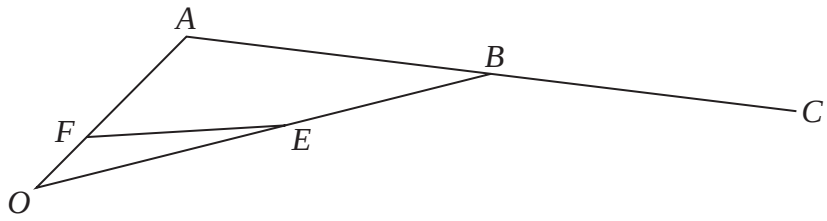

Diagram **NOT** accurately drawn

Figure 6

Figure 6 shows triangle OAB.

The point E lies on OB such that $OE : OB = 1 : 2$

The point F lies on OA such that $\overrightarrow{OF} = \frac{1}{5}\overrightarrow{OA}$

Given that $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$

(a) find $\overrightarrow{FE}$ in terms of **a** and **b**

(2)

The point C is such that ABC is a straight line and $AB = BC$.

(b) Show that F, E and C are not collinear.

(4)

Given that ABG and FEG are straight lines,

(c) find $\overrightarrow{OG}$ in terms of **a** and **b**

(5)

Question 12 continued

Question 12 continued

(Total for Question 12 is 11 marks)

TOTAL FOR PAPER IS 100 MARKS