9

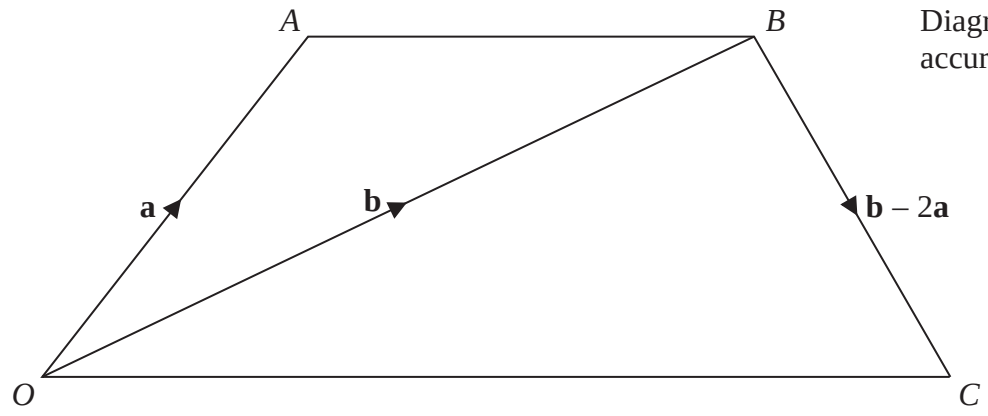

Diagram **NOT** accurately drawn

Figure 2

Figure 2 shows a quadrilateral $OABC$

$$\overrightarrow{OA} = \mathbf{a},\ \overrightarrow{OB} = \mathbf{b} \text{ and } \overrightarrow{BC} = \mathbf{b} - 2\mathbf{a}$$

(a) (i) Prove that $\overrightarrow{AB}$ is parallel to $\overrightarrow{OC}$

(ii) Show that $AB : OC = 1 : 2$

(4)

The point D lies on OB such that $OD : DB = 2 : 3$

(b) Find the ratio of the area of $\triangle ODC$: the area of $\triangle OAB$.

(6)

Question 9 continued

Question 9 continued

Question 9 continued

(Total for Question 9 is 10 marks)