8

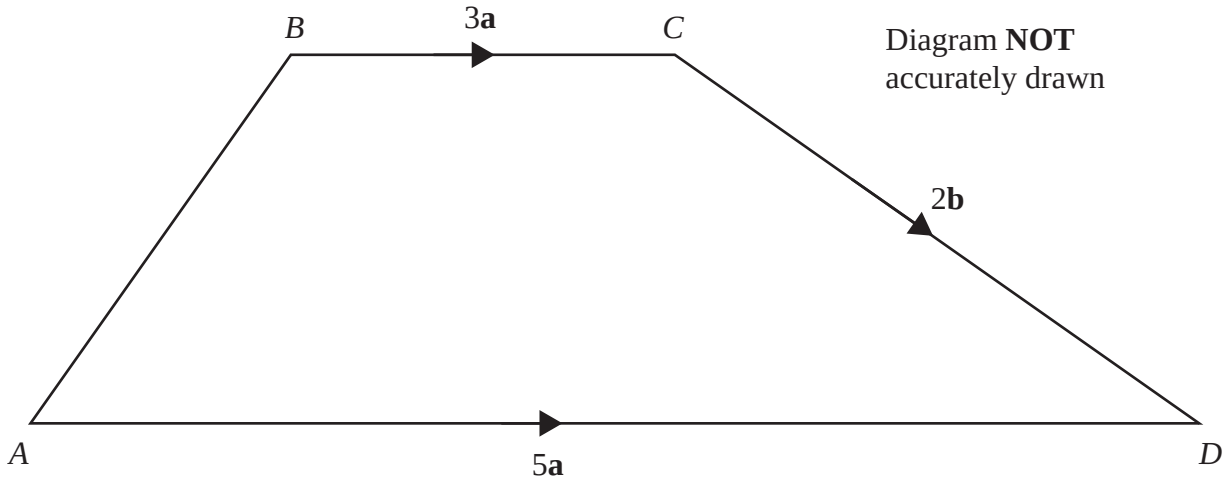

Figure 3

Figure 3 shows a trapezium $ABCD$

$$\overrightarrow{BC} = 3\mathbf{a} \qquad \overrightarrow{AD} = 5\mathbf{a} \qquad \overrightarrow{CD} = 2\mathbf{b}$$

(a) Find $\overrightarrow{AB}$ as a simplified expression in terms of **a** and **b**

(1)

The diagonals BD and AC intersect at point X where $\overrightarrow{BX} = k\overrightarrow{BD}$

(b) Using a vector method, find the value of k

(5)

(c) Find the ratio of the area of triangle CXD : area of the trapezium $ABCD$

(4)

Question 8 continued

Question 8 continued

Question 8 continued

(Total for Question 8 is 10 marks)