

8

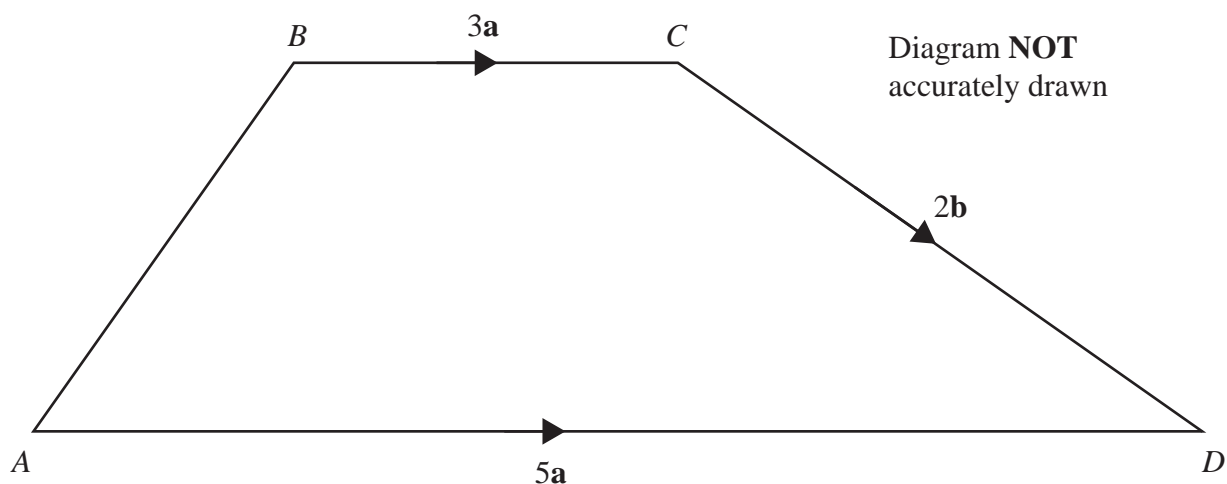


Figure 3

Figure 3 shows a trapezium  $ABCD$

$$\vec{BC} = 3\mathbf{a} \quad \vec{AD} = 5\mathbf{a} \quad \vec{CD} = 2\mathbf{b}$$

- (a) Find  $\vec{AB}$  as a simplified expression in terms of  $\mathbf{a}$  and  $\mathbf{b}$

(1)

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

- (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)

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**Question 8 continued**

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**Question 8 continued**

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**Question 8 continued**

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**(Total for Question 8 is 10 marks)**

