

9

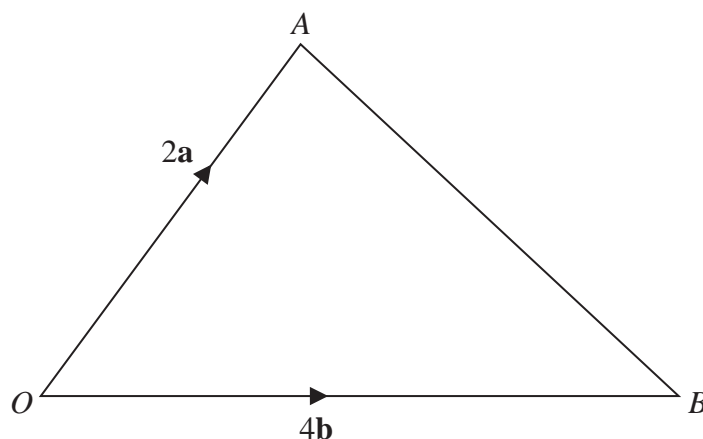
Diagram **NOT**  
accurately drawn

Figure 3

Figure 3 shows the triangle  $OAB$  with

$$\overrightarrow{OA} = 2\mathbf{a} \text{ and } \overrightarrow{OB} = 4\mathbf{b}$$

- (a) Find
- $\overrightarrow{AB}$
- in terms of
- $\mathbf{a}$
- and
- $\mathbf{b}$

(2)

The point  $P$  is the midpoint of  $AB$ 

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

(2)

The point  $Q$  lies on  $OP$  such that  $OQ : QP = 3 : 1$ 

- (c) Find
- $\overrightarrow{AQ}$
- as a simplified expression in terms of
- $\mathbf{a}$
- and
- $\mathbf{b}$

(3)

The point  $R$  lies on  $OB$  such that  $AQR$  is a straight line.

- (d) Find in its simplest form the ratio
- $OR : RB$

(6)

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**Question 9 continued**

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Handwriting practice area with horizontal dotted lines.



P 6 6 3 0 8 A 0 2 9 3 6

**Question 9 continued**

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**Question 9 continued**

Handwriting practice area with horizontal dotted lines.

**(Total for Question 9 is 13 marks)**

