GCSE AQA Maths (8300) Foundation Tier
Question Paper

Fully inlined with first assessment 2026 and suitable for students sitting exams 2026+

Topic - Geometry and Measures
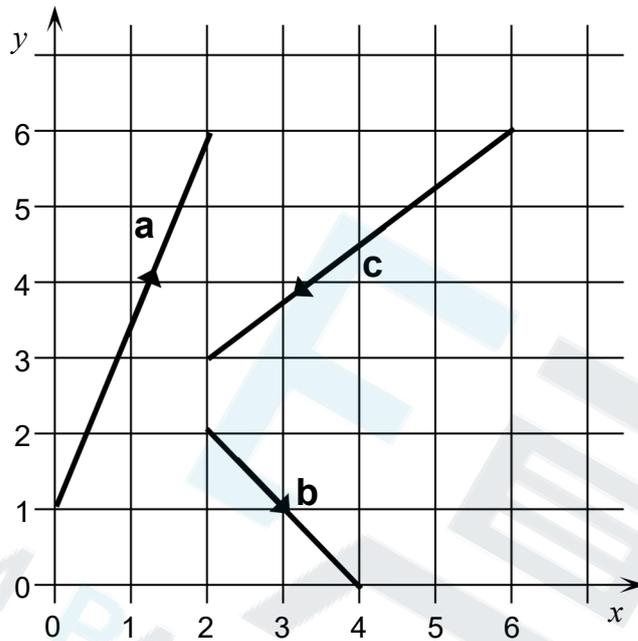
Vectors - Foundation

Marks: 20

Total Marks: / 20

Topic Test 1 (20 minutes)
Vectors - Foundation

Use this diagram to answer questions 1 to 4

The diagram shows three vectors, **a**, **b** and **c**.

1 Write the vector **a** in column form.

[1 mark]

Answer

2 Write the vector –**c** in column form.

[1 mark]

Answer

3 Write, in column form, the vector that is

      parallel to **b**
      twice as long as **b.**

[1 mark]

Answer $\begin{pmatrix} \\ \\ \end{pmatrix}$ $\begin{pmatrix} \\ \\ \end{pmatrix}$

4 Which of the following is true?
Circle your answer.

[1 mark]

a = **b** + **c**   **a** − **b** = **c**   **a** + **b** + **c** = **0**   **a** + **b** = **c**

5(a) Work out $\quad 3 \times \begin{pmatrix} -2 \\ 4 \end{pmatrix}$

[1 mark]

Answer $\begin{pmatrix} \\ \\ \end{pmatrix}$ $\begin{pmatrix} \\ \\ \end{pmatrix}$

5(b) Work out $\quad \begin{pmatrix} 2 \\ 3 \end{pmatrix} - \begin{pmatrix} -1 \\ 5 \end{pmatrix}$

[1 mark]

Answer $\begin{pmatrix} \\ \\ \end{pmatrix}$ $\begin{pmatrix} \\ \\ \end{pmatrix}$

6 Two vectors **p** and **q** are shown on the grid.
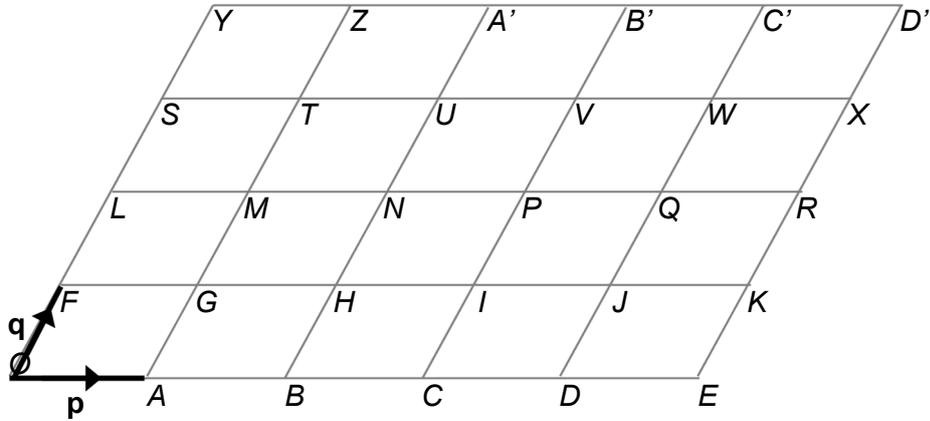
6(a) Write, in terms of **p** and **q**, the vector *HC'*.

[1 mark]

Answer _____

6(b) Write, in letters, any vector equal to 2**p** – 4**q**

[1 mark]

Answer _____

6(c) Draw, on the diagram, the vector representation of

$$(\mathbf{p} - 2\mathbf{q}) + (-2\mathbf{p} + \mathbf{q}) = -(\mathbf{p} + \mathbf{q})$$

[2 marks]

7(a)   Work out the values of *a* and *b*.

$$\begin{pmatrix} a \\ 6 \end{pmatrix} + \begin{pmatrix} 4 \\ b \end{pmatrix} = \begin{pmatrix} 7 \\ 3 \end{pmatrix}$$

[2 marks]

_____

$a =$ _____

$b =$ _____

7(b)   Work out the value of *c*.

$$\begin{pmatrix} c \\ 5 \end{pmatrix} + 2 \times \begin{pmatrix} 3 \\ d \end{pmatrix} = \begin{pmatrix} d \\ 8 \end{pmatrix}$$

[2 marks]

_____

_____

_____

$c =$ _____

8 Work out the transformation that maps shape A to shape B.
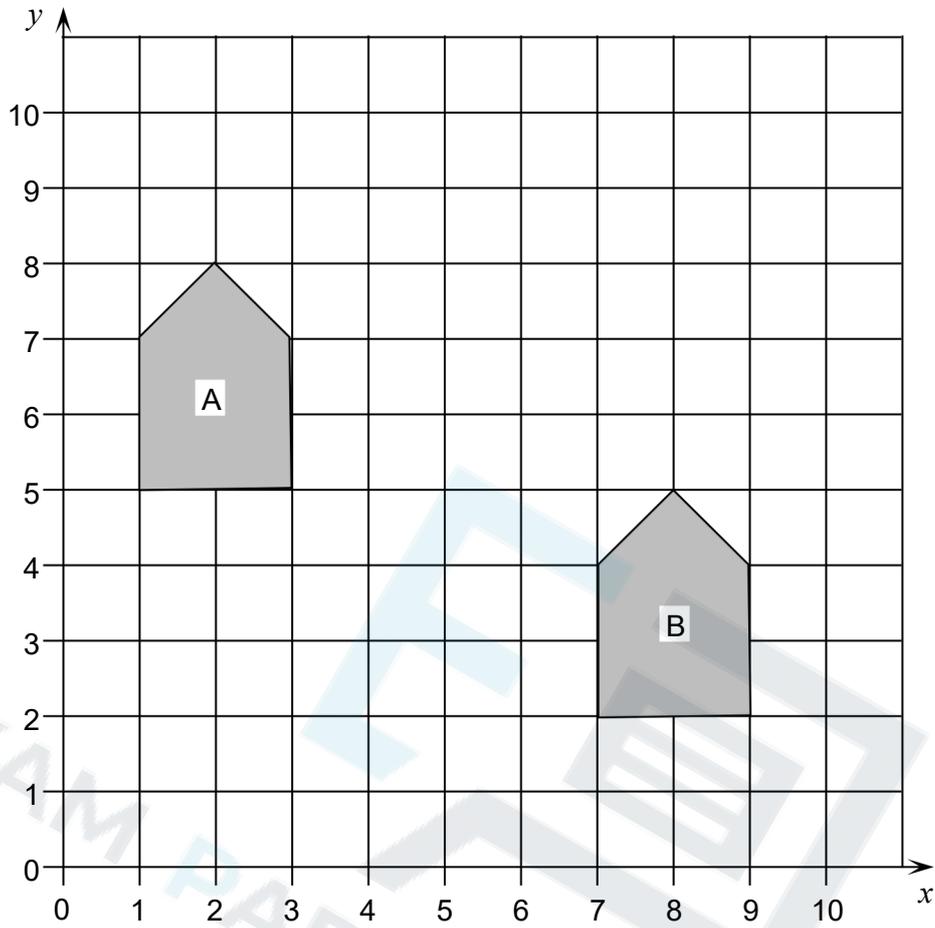
[2 marks]

Answer

9   Triangle T is mapped to triangle R by a translation of $\begin{bmatrix} -3 \\ -2 \end{bmatrix}$

Draw triangle R on the grid.

[2 marks]
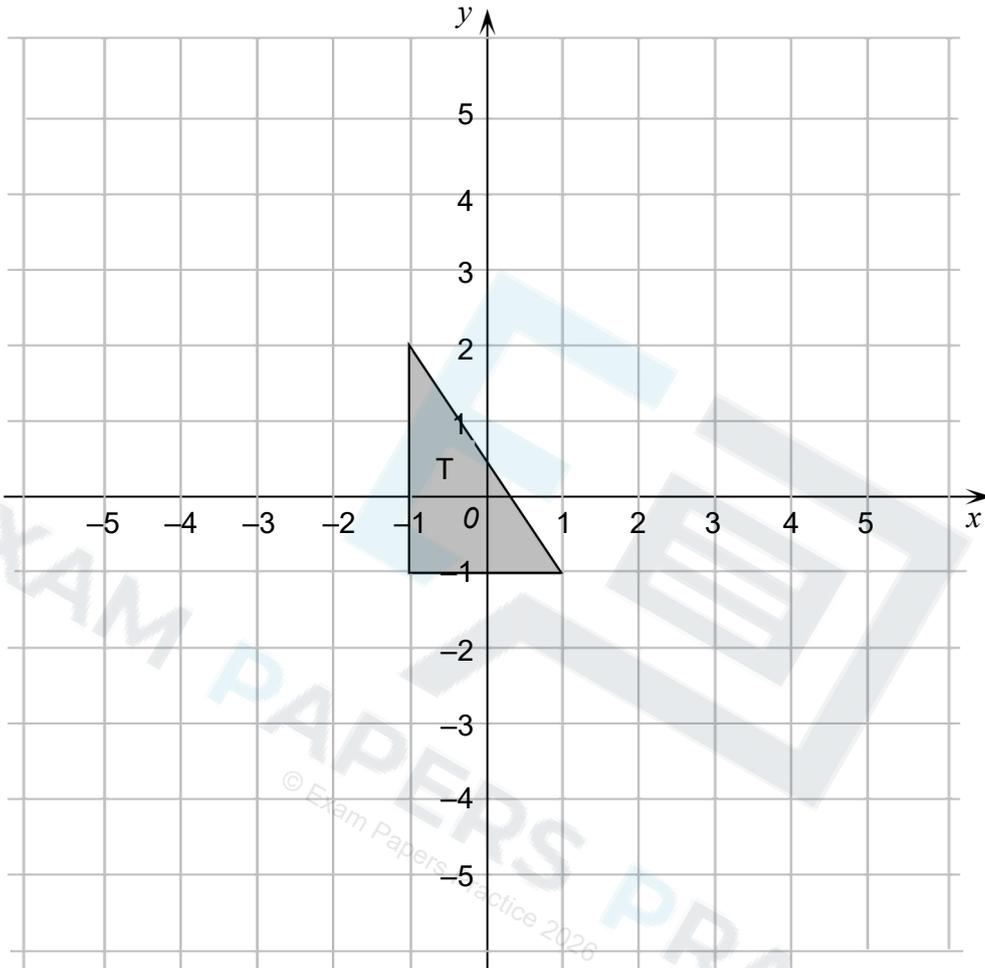
10
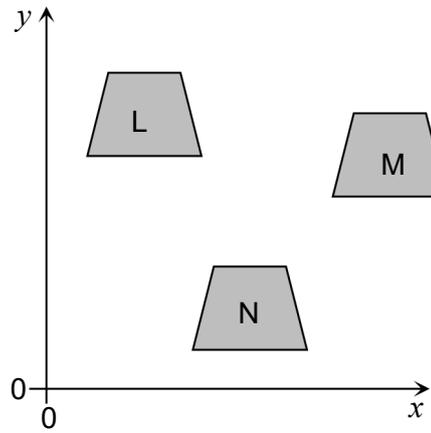
Not drawn accurately

Shape L is mapped to shape M by the vector $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$

Shape M is mapped to shape N by the vector $\begin{pmatrix} -3 \\ -5 \end{pmatrix}$

Work out the vector that maps shape L to shape N.

[2 marks]

Answer $\begin{pmatrix} \\ \end{pmatrix}$