Chhetri Academy

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GCSE MATHS

Geometry and measures

Edexcel 1MA1 | Subtopic collection Topic 49

Vectors

Foundation tier

Past paper question booklet

7	2017-2025	Foundation
question groups	available papers	tier

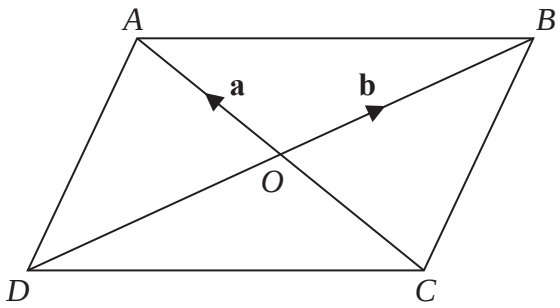
Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

27



ABCD is a parallelogram.
The diagonals of the parallelogram intersect at *O*.

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

(a) Find, in terms of **b**, the vector $\overrightarrow{DB}$.

.....

(1)

(b) Find, in terms of **a** and **b**, the vector $\overrightarrow{AB}$.

.....

(1)

(c) Find, in terms of **a** and **b**, the vector $\overrightarrow{AD}$.

.....

(1)

(Total for Question 27 is 3 marks)

Question 02

26 $\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ 7 \end{pmatrix}$

Work out $2\mathbf{a} + \mathbf{b}$ as a column vector.

$\begin{pmatrix} \text{--------} \\ \text{--------} \end{pmatrix}$

(Total for Question 26 is 2 marks)

Question 03

June 2019 | 1MA1/2F | Original Q29

29 $\mathbf{a} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

Work out $\mathbf{a} - 2\mathbf{b}$ as a column vector.

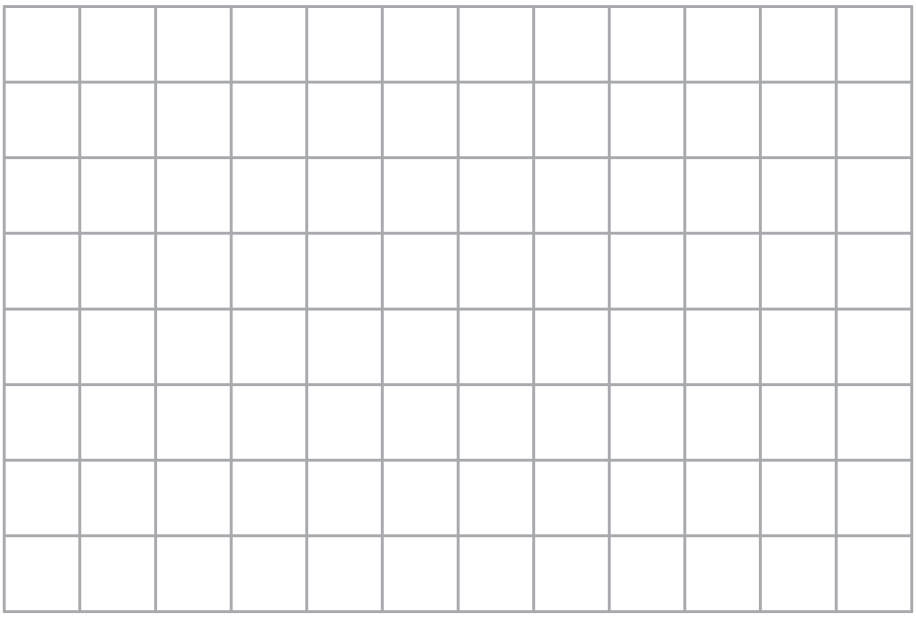
$\begin{pmatrix} \text{--------} \\ \text{--------} \end{pmatrix}$

(Total for Question 29 is 2 marks)

30 Here are two column vectors.

$$\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix} \qquad \mathbf{b} = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$$

On the grid below, draw and label the vector $\mathbf{a} - 2\mathbf{b}$



(Total for Question 30 is 3 marks)

Question 05

26 $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$

Find $2\mathbf{a} - 3\mathbf{b}$ as a column vector.

$\begin{pmatrix} \ldots\ldots \\ \ldots\ldots \end{pmatrix}$

(Total for Question 26 is 2 marks)

30 $\mathbf{a} = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$ $\mathbf{c} = \begin{pmatrix} 4 \\ 1 \end{pmatrix}$

(a) Work out as a column vector

(i) $\mathbf{a} + \mathbf{b}$

$\begin{pmatrix} \ldots\ldots \\ \ldots\ldots \end{pmatrix}$

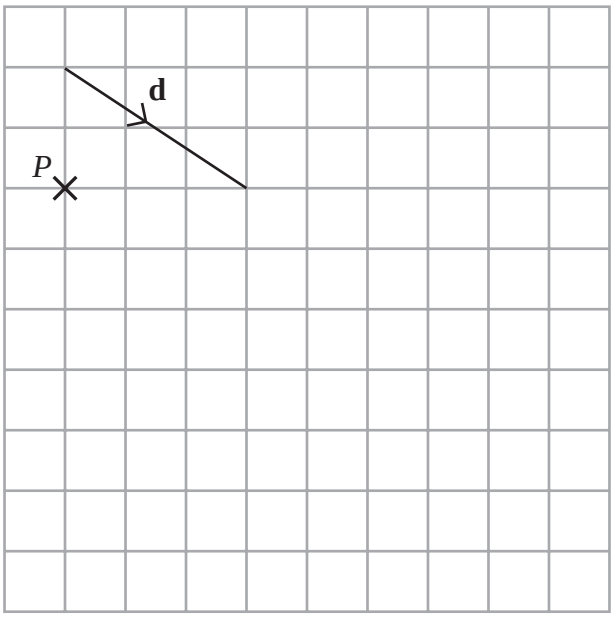
(1)

(ii) $2\mathbf{a} - \mathbf{c}$

$\begin{pmatrix} \ldots\ldots \\ \ldots\ldots \end{pmatrix}$

(2)

The vector **d** is drawn on the grid.



(b) From the point *P*, draw the vector $2\mathbf{d}$

(1)

(Total for Question 30 is 4 marks)

26 $\mathbf{c} = \begin{pmatrix} 7 \\ 4 \end{pmatrix}$ $\mathbf{d} = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$

Work out $2\mathbf{c} + 3\mathbf{d}$
Give your answer as a column vector.

$\begin{pmatrix} \ldots\ldots\ldots \\ \ldots\ldots\ldots \end{pmatrix}$

(Total for Question 26 is 2 marks)