

Vectors

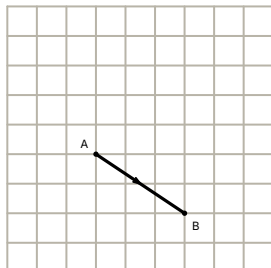
discia.org · 10 questions · 26 marks

NAME _____

DATE _____

- 1 Here is a vector, drawn as an arrow from A to B on a grid of unit squares.

📄 EITHER PAPER 1 MARK

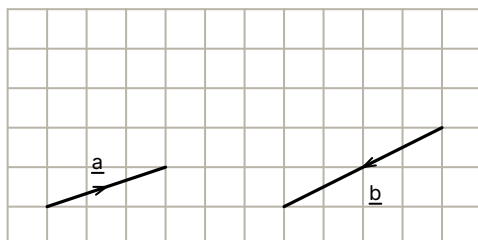


Circle the column vector that represents the arrow from A to B .

$\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$ $\begin{pmatrix} -3 \\ -2 \end{pmatrix}$

- 2 The diagram shows the vectors $\mathbf{a}$ and $\mathbf{b}$ drawn on a grid of unit squares.

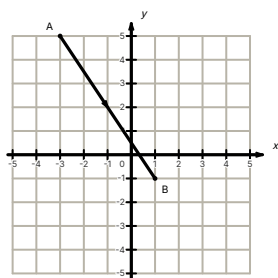
📄 EITHER PAPER 2 MARKS



- (a) Write $\mathbf{a}$ as a column vector.
(b) Write $\mathbf{b}$ as a column vector.

- 3 The points A and B are marked on a coordinate grid.

EITHER PAPER 3 MARKS



- (a) Write $\overrightarrow{AB}$ as a column vector.
- (b) Write $\overrightarrow{BA}$ as a column vector.

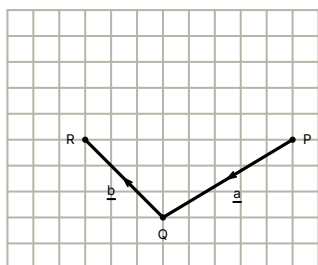
- 4 The vector $\begin{pmatrix} -4 \\ 5 \end{pmatrix}$ translates C to D .

EITHER PAPER 1 MARK

Write down the vector that translates D to C .

- 5 The diagram shows the points P , Q and R on a grid of unit squares.

EITHER PAPER 3 MARKS



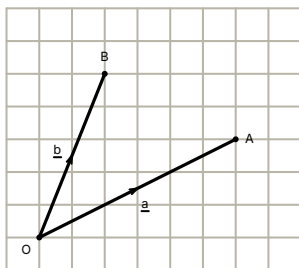
$$\overrightarrow{PQ} = \mathbf{a} \text{ and } \overrightarrow{QR} = \mathbf{b}.$$

- (a) Write $\mathbf{a}$ as a column vector.
- (b) Write $\overrightarrow{PR}$ as a column vector.

6

The diagram shows $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$ on a grid of unit squares.

EITHER PAPER 2 MARKS

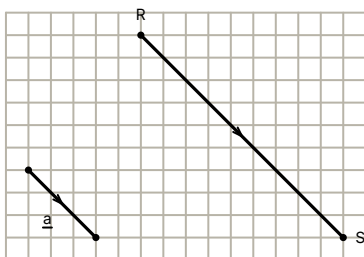


Work out $\mathbf{a} - \mathbf{b}$. Give your answer as a column vector.

7

The vector $\mathbf{a}$ and the points R and S are drawn on a grid of unit squares.

EITHER PAPER 3 MARKS

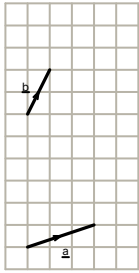


(a) Write $\mathbf{a}$ as a column vector.

(b) Find $\overrightarrow{RS}$ in terms of $\mathbf{a}$.

- 8 The diagram shows the vectors **a** and **b** drawn on a grid of unit squares.

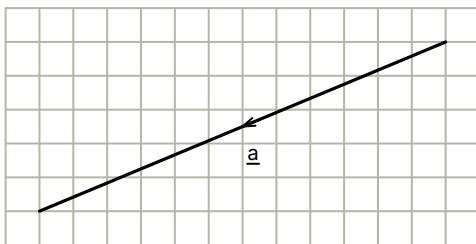
EITHER PAPER 4 MARKS



- (a) Work out $2\mathbf{a}$. Give your answer as a column vector.
(b) Work out $2\mathbf{a} - \mathbf{b}$. Give your answer as a column vector.

- 9 Here is the vector **a** drawn on a grid of unit squares.

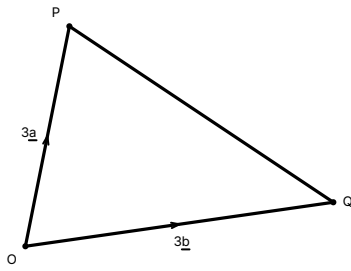
EITHER PAPER 3 MARKS



Work out $|\mathbf{a}|$.

10 OPQ is a triangle.

EITHER PAPER 4 MARKS



$$\overrightarrow{OP} = 3\mathbf{a} \text{ and } \overrightarrow{OQ} = 3\mathbf{b}.$$

- (a) Express $\overrightarrow{PQ}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.
- (b) Express $\overrightarrow{QP}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.

1	$\begin{pmatrix} 3 \\ -2 \end{pmatrix}$	2	(a) $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ (b) $\begin{pmatrix} -4 \\ -2 \end{pmatrix}$
3	(a) $\begin{pmatrix} 4 \\ -6 \end{pmatrix}$ (b) $\begin{pmatrix} -4 \\ 6 \end{pmatrix}$	4	$\begin{pmatrix} 4 \\ -5 \end{pmatrix}$
5	(a) $\begin{pmatrix} -5 \\ -3 \end{pmatrix}$ (b) $\begin{pmatrix} -8 \\ 0 \end{pmatrix}$	6	$\begin{pmatrix} 4 \\ -2 \end{pmatrix}$
7	(a) $\begin{pmatrix} 3 \\ -3 \end{pmatrix}$ (b) $3\mathbf{a}$	8	(a) $\begin{pmatrix} 6 \\ 2 \end{pmatrix}$ (b) $\begin{pmatrix} 5 \\ 0 \end{pmatrix}$
9	13	10	(a) $3\mathbf{b} - 3\mathbf{a}$ (b) $3\mathbf{a} - 3\mathbf{b}$