

Vectors HW:

Question 1:

$$\mathbf{a} = \begin{pmatrix} 4 \\ 1 \end{pmatrix} \text{ and } \mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$

(a) Write down as a column vector

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

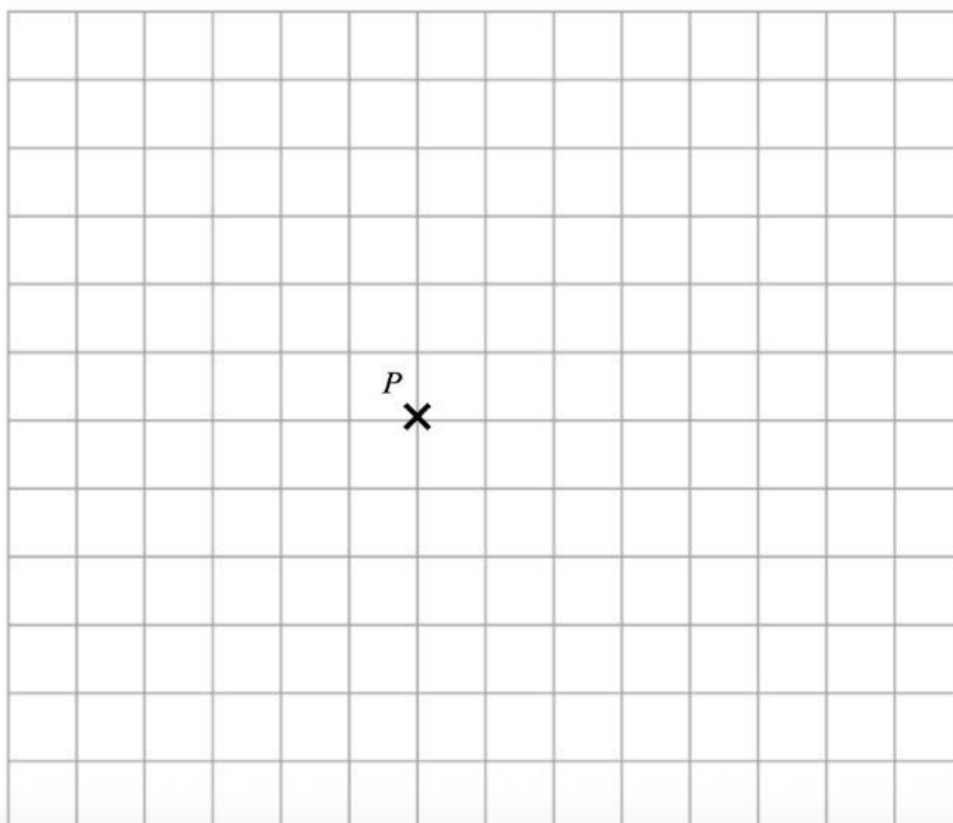
.....
(1)

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

.....
(2)

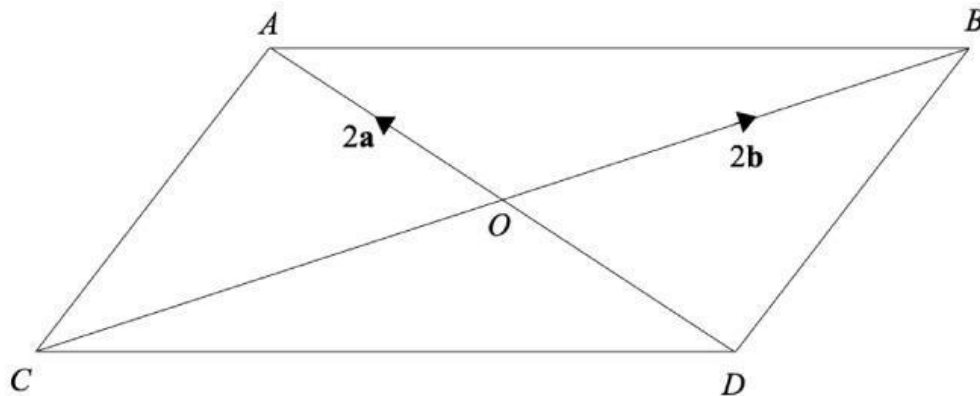
$$\mathbf{c} = \begin{pmatrix} 5 \\ -4 \end{pmatrix}$$

(b) From the point P , draw the vector $\mathbf{c}$



Question 2:

The diagram shows a parallelogram.



$$\vec{OA} = 2\mathbf{a}$$

$$\vec{OB} = 2\mathbf{b}$$

Hint: First find and label onto the diagram what C-to-O is, and what D-to-O is. This will help you solve parts a, b & c mor easily

- (a) Find, in terms of $\mathbf{a}$, the vector $\vec{DA}$

.....
(1)

- (b) Find, in terms of $\mathbf{a}$ and $\mathbf{b}$, the vector $\vec{AB}$

.....
(1)

- (c) Find, in terms of $\mathbf{a}$ and $\mathbf{b}$, the vector $\vec{AC}$

.....
(1)

Question 3:

A is the point (5, -1) and B is the point (4, -3).

- (a) Write down as a column vector $\vec{AB}$

.....
(1)

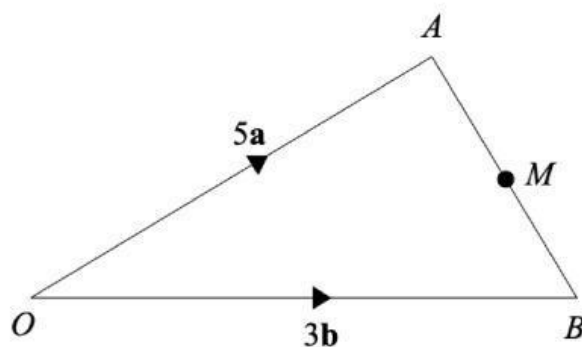
Question 4:

C is the point $(1, 6)$ and D is the point $(-3, 9)$.

(b) Write down as a column vector $\vec{CD}$

.....
(1)

Question 5:



$$\vec{OA} = 5\mathbf{a}$$

$$\vec{OB} = 3\mathbf{b}$$

M is the midpoint of AB

(a) Find, in terms of $\mathbf{a}$ and $\mathbf{b}$, the vector $\vec{AB}$

.....
(1)

(b) Find, in terms of $\mathbf{a}$ and $\mathbf{b}$, the vector $\vec{AM}$

.....
(1)

(c) Find, in terms of $\mathbf{a}$ and $\mathbf{b}$, the vector $\vec{OM}$

.....
(1)

End of questions