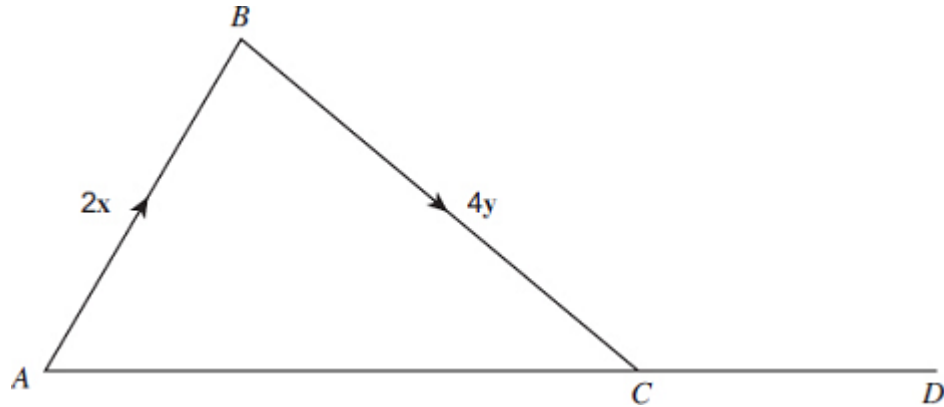


Calculator

Q1.

$\vec{AB} = 2x$ and $\vec{BC} = 4y$
 ACD is a straight line.



- (a) Write down the vector \vec{AC} in terms of x and y .

Answer _____

(1)

- (b) $AC : CD = 2 : 1$

Work out the vector \vec{AD} in terms of x and y ,
Give your answer as simply as possible.

Answer _____

(2)

(Total 3 marks)

Q2.

Work out $\begin{pmatrix} -4 \\ -7 \end{pmatrix} - \begin{pmatrix} -5 \\ 3 \end{pmatrix}$
Circle your answer.

$$\begin{pmatrix} -9 \\ 4 \end{pmatrix}$$

$$\begin{pmatrix} 1 \\ 4 \end{pmatrix}$$

$$\begin{pmatrix} -1 \\ 4 \end{pmatrix}$$

$$\begin{pmatrix} 1 \\ -10 \end{pmatrix}$$

$$\begin{pmatrix} -9 \\ -10 \end{pmatrix}$$

(Total 1 mark)

Q3.

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

Circle the vector $2\mathbf{a} + \mathbf{b}$

$$\begin{pmatrix} -5 \\ -3 \end{pmatrix}$$

$$\begin{pmatrix} -11 \\ -3 \end{pmatrix}$$

$$\begin{pmatrix} -5 \\ -1 \end{pmatrix}$$

$$\begin{pmatrix} -11 \\ -1 \end{pmatrix}$$

(Total 1 mark)

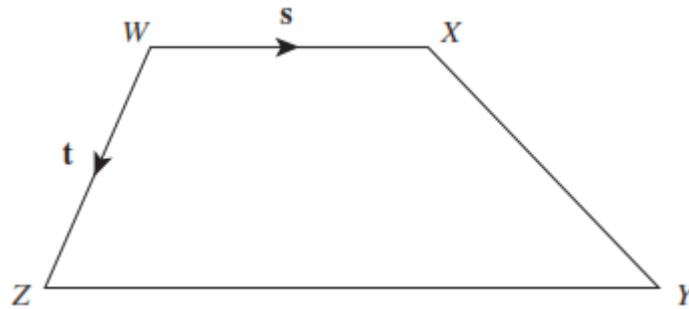
Q4.

$WXYZ$ is a trapezium.

$$\overrightarrow{WX} = \mathbf{s}$$

$$\overrightarrow{WZ} = \mathbf{t}$$

$$ZY : WX = 3 : 2$$



- (a) Write vector \overrightarrow{ZY} in terms of \mathbf{s}

Answer _____

(1)

- (b) Work out vector \overrightarrow{XY} in terms of \mathbf{s} and \mathbf{t}
Give your answer in its simplest form.

Answer _____

(2)

(Total 3 marks)

Q5.

Here are two column vectors.

$$\mathbf{f} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} \quad \mathbf{g} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$$

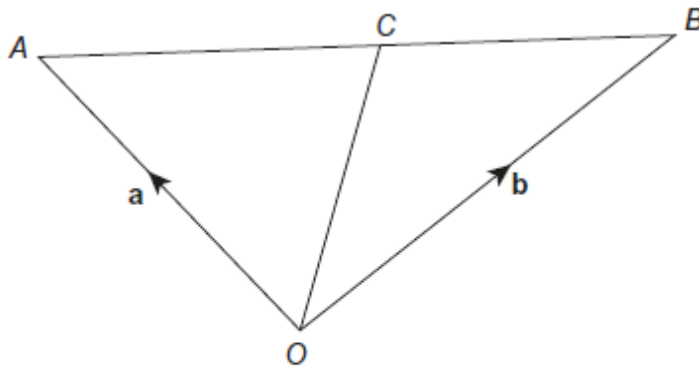
Work out $3\mathbf{f} - 2\mathbf{g}$

Answer _____

(Total 2 marks)

Q6.

C is the midpoint of the straight line AB.



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

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

- (a) Work out \vec{OC} in terms of \mathbf{a} and \mathbf{b} .
Simplify your answer.

(3)

- (b) Hence, write down an expression for \vec{CO} in terms of \mathbf{a} and \mathbf{b} .
Simplify your answer.

Answer _____

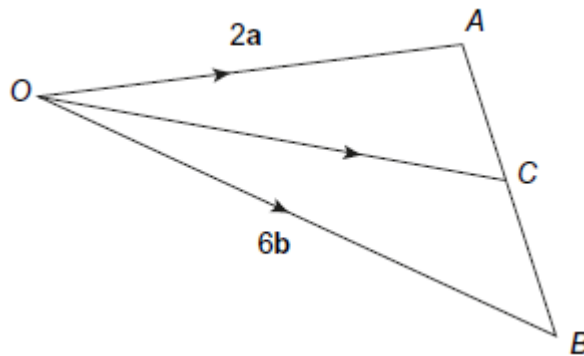
(1)

(Total 4 marks)

Q7.

C is the midpoint of AB.

Not drawn accurately



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

$$\vec{OB} = 6\mathbf{b}$$

Work out \vec{OC} in terms of \mathbf{a} and \mathbf{b} .

Simplify your answer as far as possible.

Answer _____

(Total 4 marks)