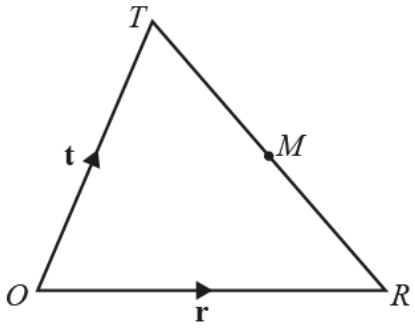
1. Nov/2021/Paper_23/No.26



NOT TO SCALE

ORT is a triangle and M is the midpoint of TR.
O is the origin, $\overrightarrow{OR} = \mathbf{r}$ and $\overrightarrow{OT} = \mathbf{t}$.

Find, in terms of **r** and **t**, in its simplest form,

(a) $\overrightarrow{TR}$,

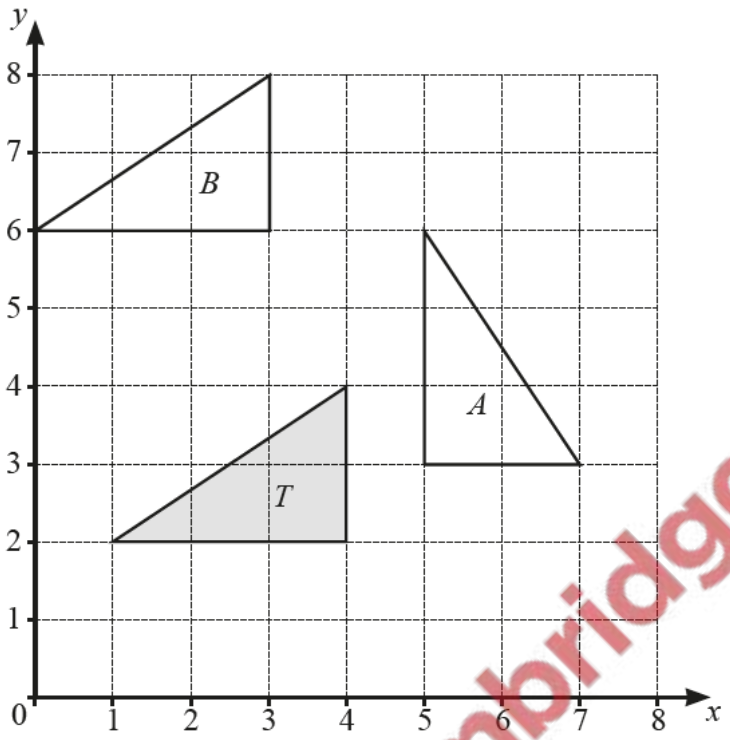
..... [1]

(b) the position vector of M.

..... [2]

2. Nov/2021/Paper_43/No.1

The diagram shows three triangles, T, A, and B, drawn on a 1 cm^2 grid.



(a) Describe fully the **single** transformation that maps triangle T onto triangle A.

.....

..... [3]

(b) **(i)** Describe fully the **single** transformation that maps triangle T onto triangle B.

.....

..... [2]

(ii) Calculate the distance that each point of triangle T moves when it is mapped onto triangle B.

..... cm [2]

3. June/2021/Paper_21/No.5

Work out.

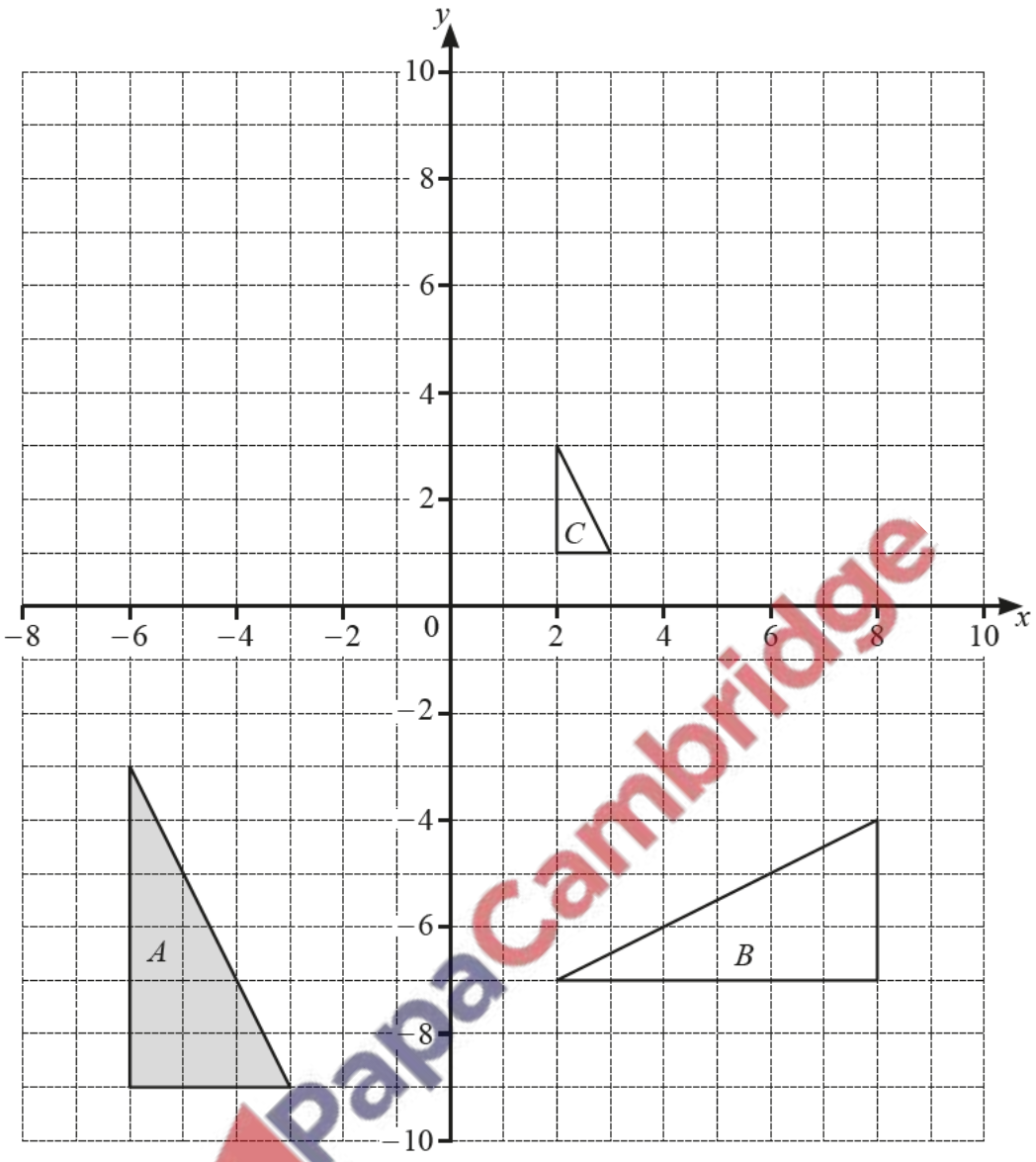
(a) $\begin{pmatrix} 6 \\ -5 \end{pmatrix} + \begin{pmatrix} 8 \\ -1 \end{pmatrix}$

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(b) $3\begin{pmatrix} -4 \\ 7 \end{pmatrix}$

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

4. June/2021/Paper_21/No.11



(a) Describe fully the **single** transformation that maps

(i) triangle A onto triangle B,

.....

..... [3]

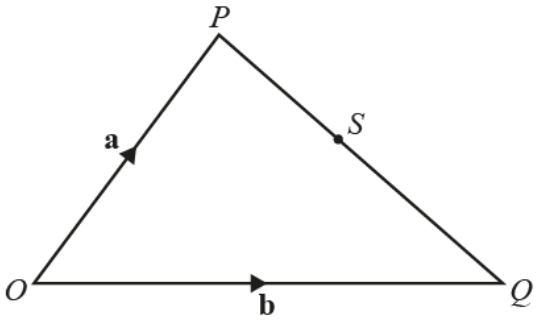
(ii) triangle A onto triangle C.

.....

..... [3]

(b) Draw the image of triangle A after a translation by the vector $\begin{pmatrix} 2 \\ 10 \end{pmatrix}$. [2]

5. June/2021/Paper_21/No.19



NOT TO SCALE

S is a point on PQ such that $PS : SQ = 4 : 5$.

Find $\overrightarrow{OS}$, in terms of **a** and **b**, in its simplest form.

$\overrightarrow{OS}$ = ... [2]