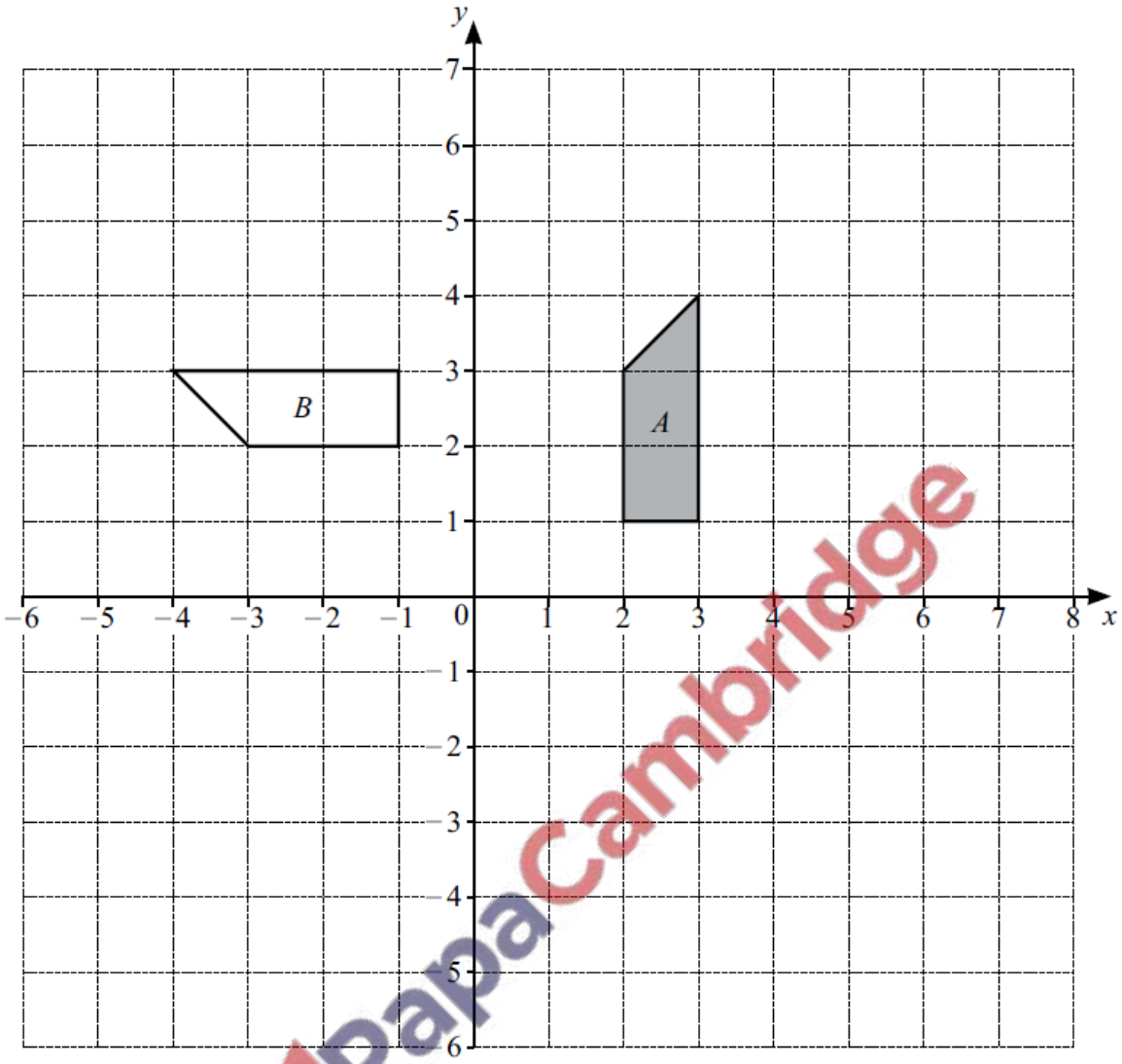
Vectors and transformations – 2025 Specimen IGCSE 0580 Math

1. Specimen/2025/Paper_01/No.18



(a) Describe fully the **single** transformation that maps shape A onto shape B.

.....

..... [3]

(b) On the grid, draw the image of

(i) shape A after a translation by the vector $\begin{pmatrix} -5 \\ -6 \end{pmatrix}$. [2]

(ii) shape A after an enlargement by scale factor 3, centre (1, 4). [2]

2. Specimen/2025/Paper_02/No.7

$$\mathbf{u} = \begin{pmatrix} 3 \\ -2 \end{pmatrix} \quad \mathbf{v} = \begin{pmatrix} -12 \\ 5 \end{pmatrix}$$

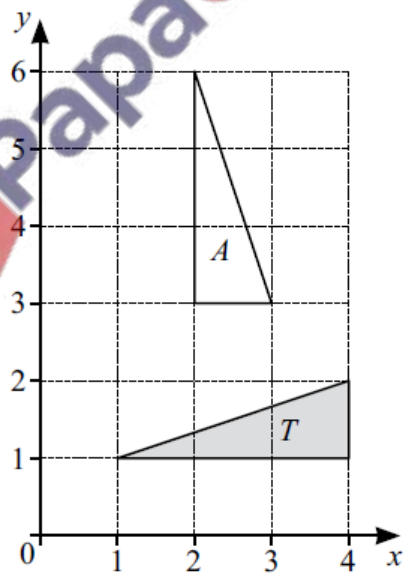
(a) Find $\mathbf{u} - 2\mathbf{v}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

(b) Find $|\mathbf{v}|$.

..... [2]

3. Specimen/2025/Paper_02/No.15



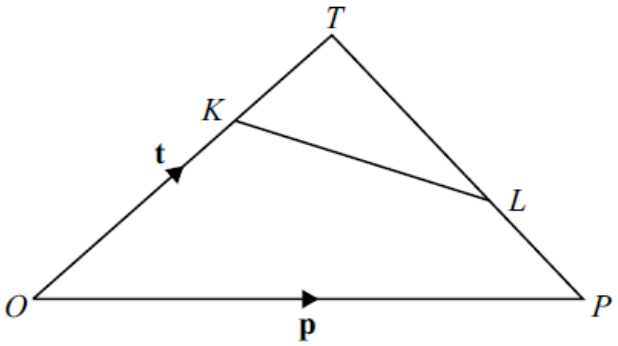
Describe fully the **single** transformation that maps triangle T onto triangle A.

.....

..... [3]

4. Specimen/2025/Paper_04/No.22

The diagram shows triangle OPT.



NOT TO SCALE

In the diagram $\overrightarrow{OT} = \mathbf{t}$ and $\overrightarrow{OP} = \mathbf{p}$.
$OK : KT = 2 : 1$ and $TL : LP = 2 : 1$.

(a) Find, in terms of **t** and **p**, in its simplest form

(i) $\overrightarrow{PL}$

..... [2]

(ii) $\overrightarrow{KL}$.

..... [2]

(b) KL is extended to the point M.

$\overrightarrow{KM} = -\frac{2}{3}\mathbf{t} + \frac{4}{3}\mathbf{p}$.

Show that M lies on OP extended.

[2]