

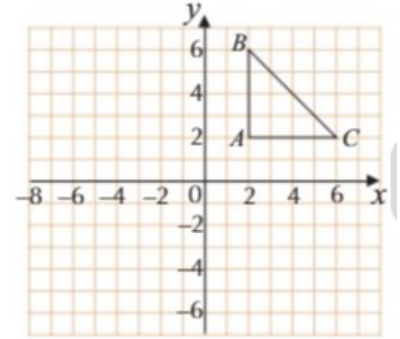
Name - \_\_\_\_\_

Start time - \_\_ : \_\_

End time - \_\_ : \_\_

**Solve the following**

1. Copy the diagram on the right.
  - a) Rotate triangle ABC 180° about (0, 0). Label the image  $A_1, B, C_1$ .

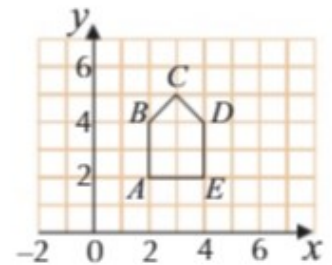


- b)  $A_1, B, C_1$  is translated such that the point B on the triangle ABC is invariant under the combination of the rotation followed by the translation. Describe this translation.

2. Triangle WXY has its corners at  $W(-5, -5)$ ,  $X(-4, -2)$  and  $Y(-2, -4)$ .
  - a) Draw triangle WXY on a pair of axes, where both the x- and y-axes are labelled from -6 to 6.
  - b) Reflect WXY in the line  $y = x$ . Label the image  $W_1, X_1, Y_1$ .
  - c) Reflect the image  $W_1, X_1, Y_1$ , in the y-axis. Label the image  $W_2, X_2, Y_2$ .
  - d) Find a single transformation that maps WXY onto the image  $W_2, X_2, Y_2$ .

3. Copy the diagram on the right.

- a) Translate shape ABCDE by  $\begin{pmatrix} -2 \\ -2 \end{pmatrix}$  Label the image  $A_1, B_1, C_1, D_1, E_1$ .



- b) The shape  $A_1, B_1, C_1, D_1, E_1$  is rotated to become  $A_2, B_2, C_2, D_2, E_2$ . Under the combination of the translation from a) and this rotation, point C is invariant and point D maps to point  $B_2$ . Describe the rotation.