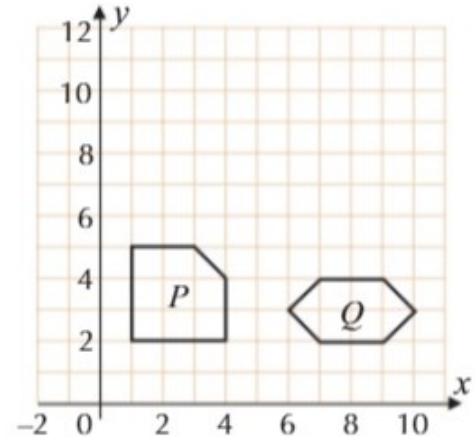Name - _ _ _ _ _ _ _ _   Start time - _ _ : _ _   End time - _ _ : _ _

Solve the following

1. Copy the diagram on the right.
   a) (i) Rotate shape P 180° about (4, 5).

   (ii) Translate the image by ($\frac{2}{2}$). Label the

   final image P_1.
   b) Rotate shape P 180° about (5, 6). Label the final image P_2 .
   c) (i) Rotate shape Q 180° about (4, 5).

   (ii) Translate the image by ($\frac{2}{2}$). Label the final image Q_1.

   d) Rotate shape Q 180° about (5, 6). Label the final image Q_2.
   e) What do you notice about the images P_1, and P_2, and about the images Q_1 and Q_2

2. a) Rotate triangle ABC on the axes below 180° about the point

   (1, 1), then translate the image by ($\begin{array}{c} -2 \\ -2 \end{array}$). Label the final image

   A_1, B, C_1
   b) Describe the single rotation that transforms triangle ABC onto the image A_1, B, C_1