Naming Transformations – www.m4ths.com (Excluding Enlargements with a Centre)
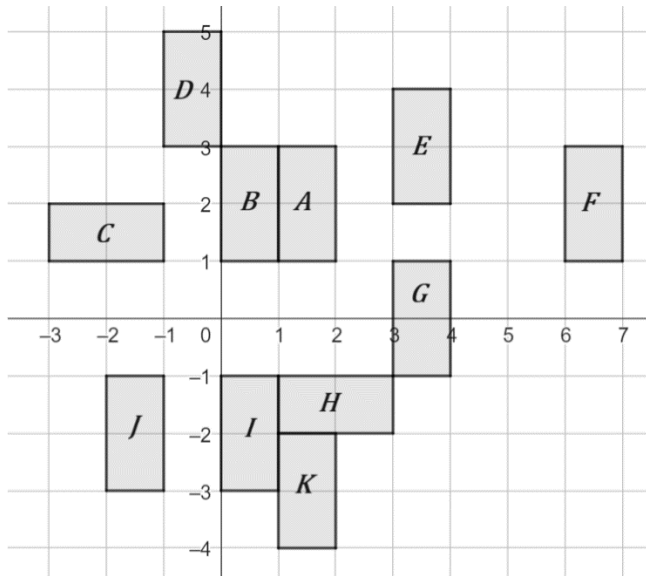
(1) *In question 1 only single transformations are used.*

(a) Explain why Shape K is not a reflection of Shape A in the x axis.

(b) Explain why Shape C is not a translation of Shape A.

(c) True of false? "Shape B is a reflection of Shape A in the line $y = 1$"

(d) State fully the single transformation that maps Shape A to Shape G.

(e) Shape A is _____, by _____ degrees _____, about the point $(0,0)$ to give Shape H

(f) Show the single transformation that maps Shape A to F could be either a translation, a reflection or even a rotation. Describe each one.

(g) Explain the difference between the transformation of Shape A to E and the transformation of Shape E to A.

(h) State fully the single transformation that maps Shape A to C. (Part (e) may help you!)

(i) Which Shape has been translated from A by the vector $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$?

(j) Show that the transformation that maps D to B is a rotation giving the details of the rotation.

(k) State fully, the single transformation that maps (i) Shape K to H. (ii) Shape H to K.

(l) State fully two different single transformations that map Shape E to G.

(2) State FULLY (fully) the single transformation that maps Shape A to each of the other shapes. (You don't have to state a centre for Shape L)
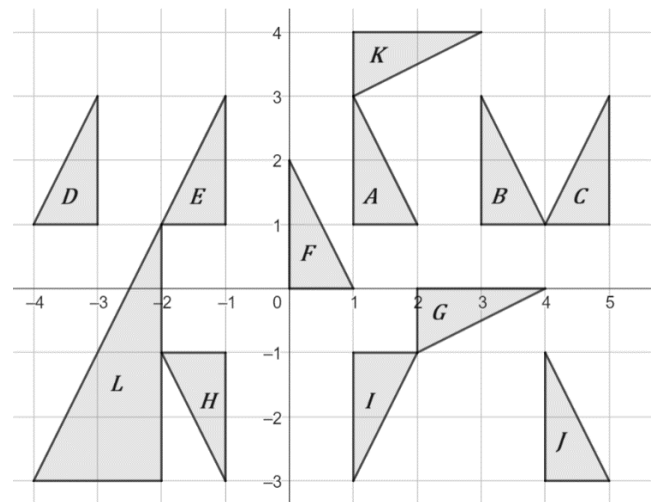

(3) (a) Explain why the transformation from Shape A to Shape B cannot be either a rotation **or** a reflection.
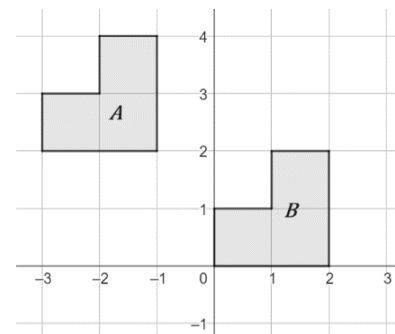
(b) State fully the single transformation that maps Shape A to Shape B.

(c) State fully the single transformation that maps Shape B to Shape A.

(4) The diagram below shows a circle, centre A. State fully the single transformation that maps A to each of the other circles. Some have more than one option. For these, state both!
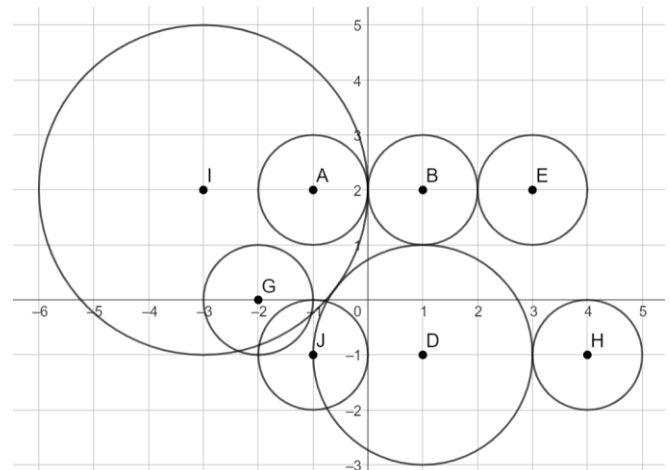
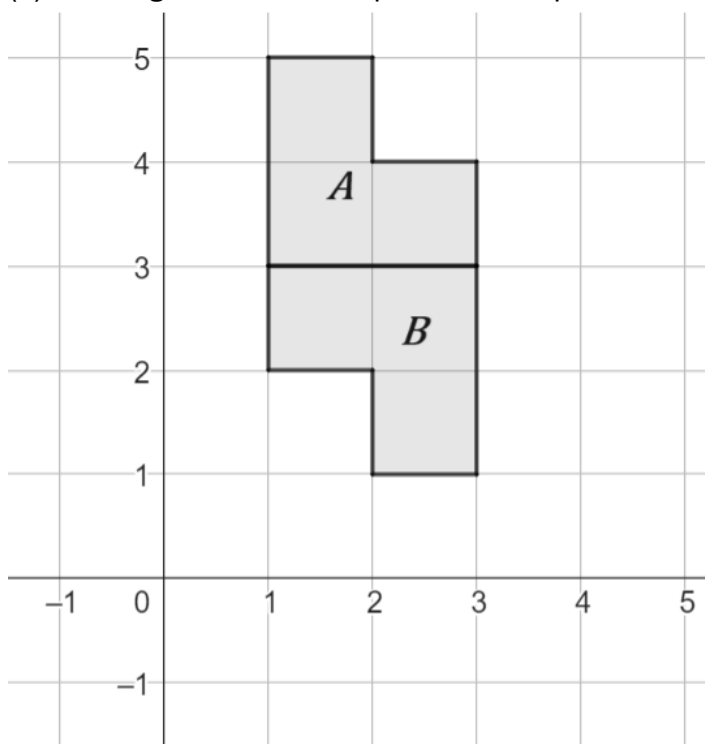(5) Shape A is translated by the vector $\binom{p}{q}$ **FOLLOWED** by a reflection in the x axis. The end result is Shape B, as shown below.
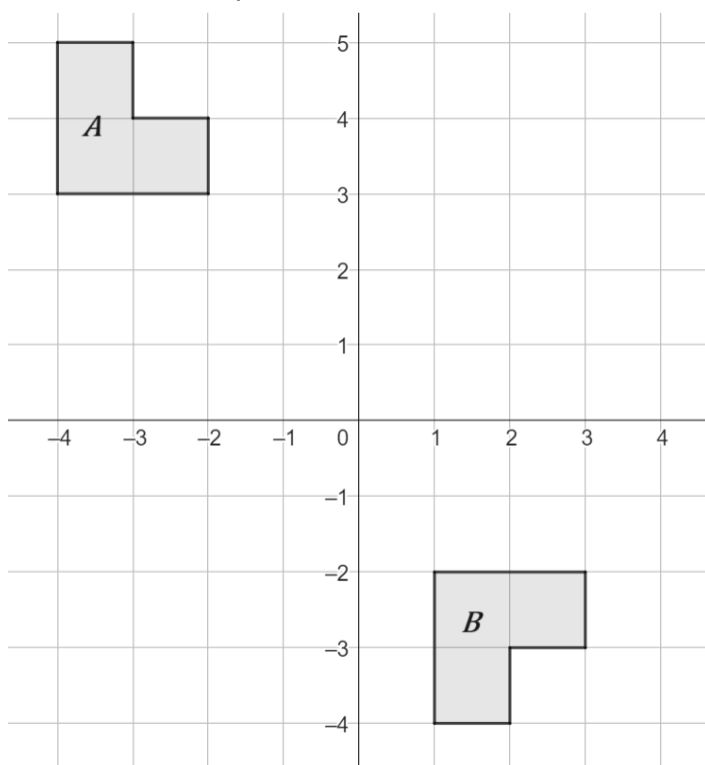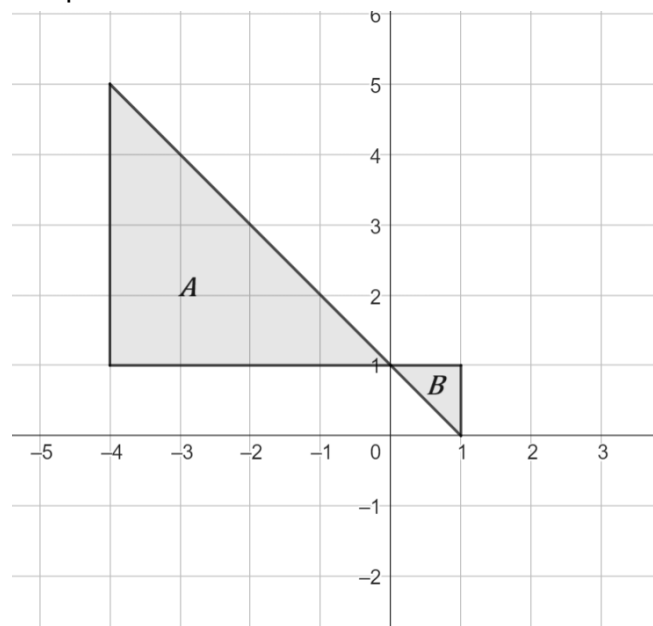

What is the vector $\binom{p}{q}$?

(6) The diagram shows Shape A and Shape B.

Shape A is transformed **twice** to give Shape B. The **second** transformation is a reflection in the line $x = 3$. State fully, <u>a possible option</u> for the first transformation.
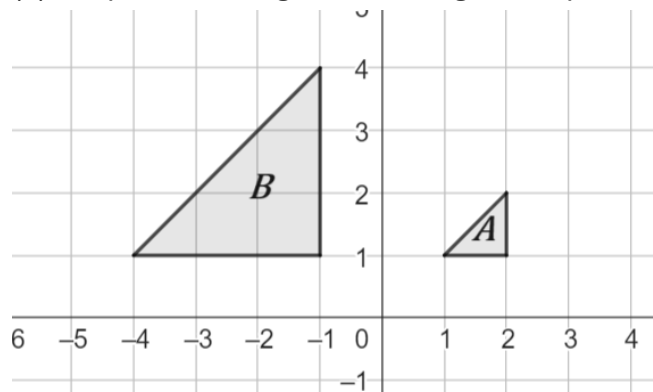
(7) The diagram below shows Shape A and Shape B.

Shape A is first rotated and then enlarged to give Shape B. Describe each of the transformations fully.

(8) Shape A is reflected **twice** to give Shape B.
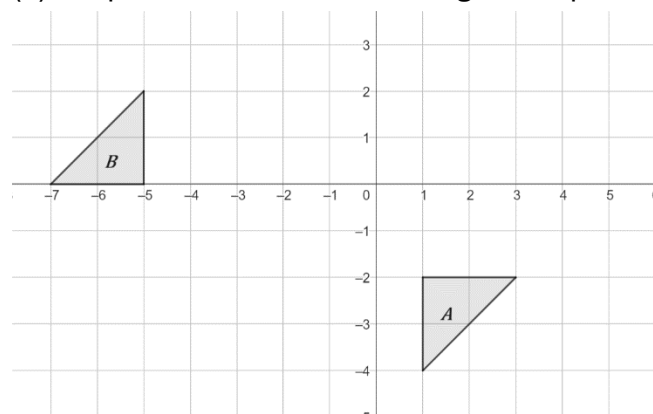
Describe a possible pair of reflections that map Shape A to Shape B.

(9) Shape A is enlarged **twice** to give Shape B.

The scale factors are p and $\frac{1}{q}$. Find a possible value for p and possible value for q.