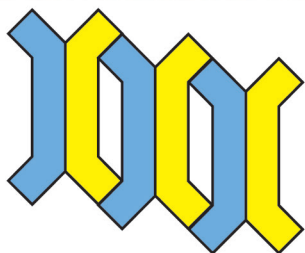
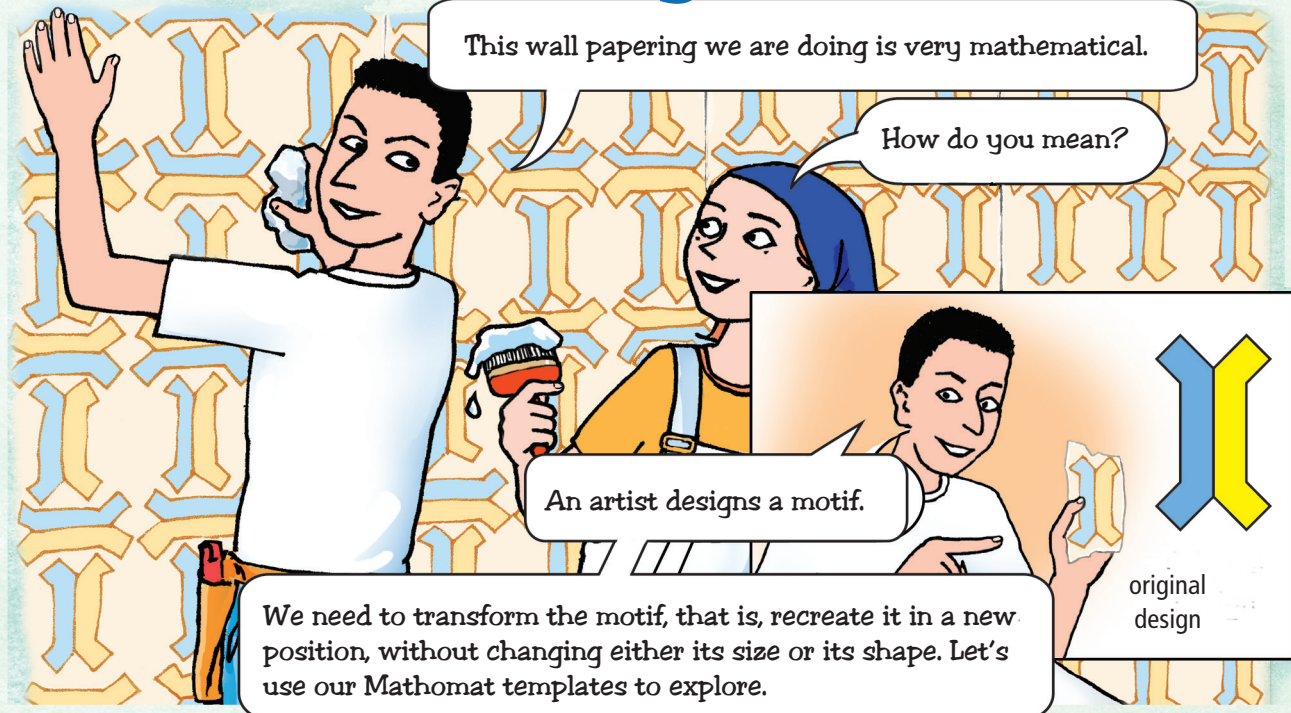
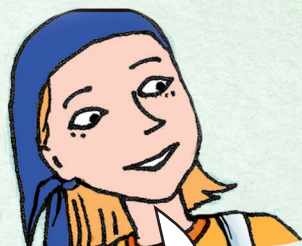


Get transforming...

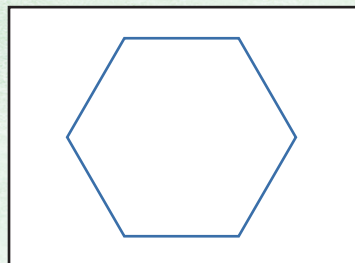


translation
(sliding without turning)



Translation recreates everything at a new position a fixed distance in a fixed direction away.

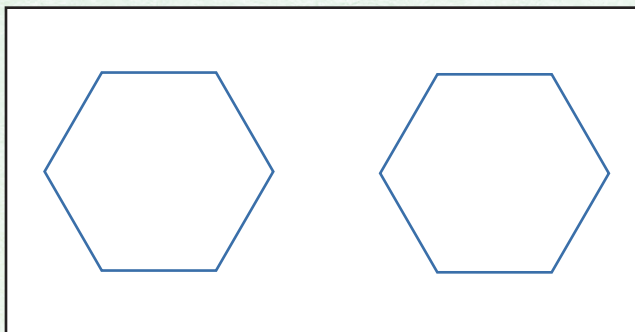
Step 1



Step 1: Draw a hexagon using Mathomat shape 2.

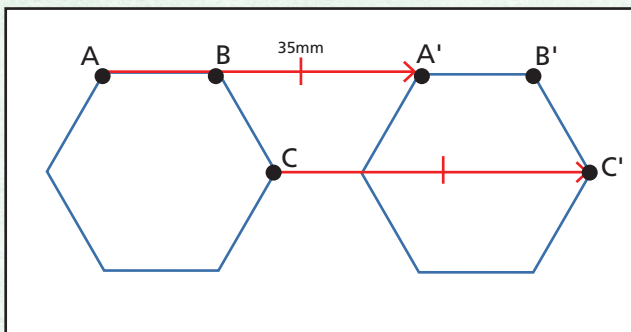
Step 2

Step 2: carefully slide your Mathomat to the right by 75mm without turning it and draw a second hexagon.



Step 3

Label each of the points on the two hexagons, A, B, C... for the first and A', B', C'... for the translated shape.



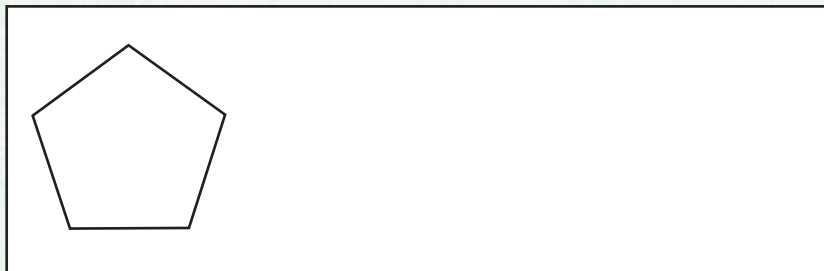
Finish labelling the points in the two hexagons above and use your Mathomat to draw in the remaining connecting lines. Check that your lines are parallel and the same length. In mathematics these are called vectors.



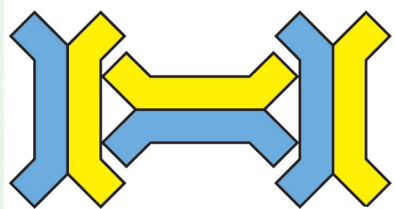
Following steps 1 to 3 on the previous page...

In the space provided use your Mathomat template to recreate the regular pentagon in a new position 50mm to the right

Remember not to turn it while sliding it.

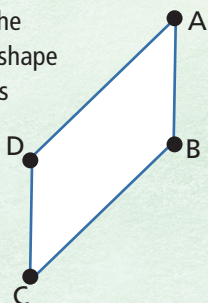


Another way to recreate a shape in a new position without changing its size or shape is by rotation. Rotation turns every point* by a fixed angle about a fixed point (called a centre of rotation). *the point at the centre of rotation remains fixed, or invariant.

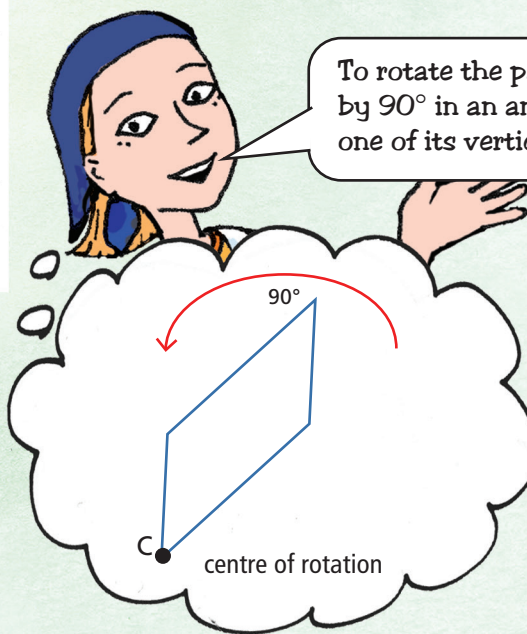
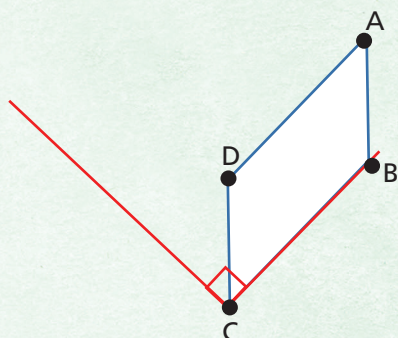


rotation
(turning everything)

Step 1: Draw the parallelogram, shape 40, and mark its vertices.



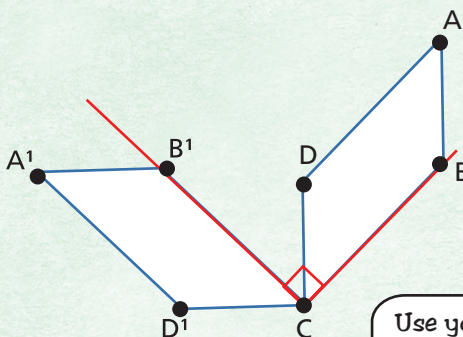
Step 3: Use the Mathomat protractor to draw a 90 degree angle from line BC.



To rotate the parallelogram in Mathomat by 90° in an anti-clockwise direction about one of its vertices I follow these steps:

Step 2. Identify the angle of rotation (90° in this case), and the centre of rotation, (point C in this case). Do this in your head.

Step 4. Reposition Mathomat over shape ABCD. Now imagine that Mathomat is pinned to the table at point C and carefully rotate it to the new position and draw shape A'B'C'D'.



Use your Mathomat and follow these steps to rotate the Mathomat including the parallelogram in it by 45° in a clockwise direction about point C.

