1. Evelyn sorts the following figures using a Venn diagram. She first decides on two properties that a figure might have and makes a chart (see below). She then writes the letters into the chart and checks to see which figures share both properties.

   ![](image)

   A  B  C  D  E  F

   **Property** | **Figures with this property**
   --- | ---
   1. One or more triangular faces |  
   2. Six or more vertices |  

   b) Which figure(s) share both properties?  
   c) Complete the following Venn diagram.

   ![Venn diagram](image)

One or more triangular faces

Six or more vertices

2. Complete both the chart and the Venn diagram below using the shapes A to F in Question 1.

   a) **Property** | **Figures with this property**
   --- | ---
   1. Rectangular base |  
   2. Ten or more edges |  

   b) Which figures share both properties?  
   c) Using the information in the chart above, complete the following Venn diagram.

   ![Venn diagram](image)

Rectangular base

Ten or more edges

3. Pick a pair of properties and draw a Venn diagram to sort these shapes.
G6-41: Creating Patterns with Transformations

1. Rotate each figure around the point P.
   a) 90° clockwise
   b) 90° counter clockwise
   c) 90° clockwise
   d) 90° clockwise
   e) 180° counter clockwise
   f) 90° clockwise
   g) 180° clockwise
   h) 90° clockwise

2. Reflect each figure in the mirror line.
   a)
   b)
   M

3. Slide each figure 1 unit right.
   a)
   b)

4. Extend each pattern. Then describe the two transformations used to create the pattern. Draw in any mirror lines or points of rotation.
   a) 
   Description: 
   b) 
   Description: 
   c) 
   Description:
5. Trace and cut out the shape below. Make a pattern by ...

   a) Sliding the shape repeatedly one unit right.

   b) Reflecting the shape repeatedly in the mirror lines.

   c) Rotating the shape repeatedly $180^\circ$ around the dots.

6. Each of the patterns below was made by repeating a transformation or a combination of transformations. Use the words "slide", "rotation" or "reflection" to describe how the shape moves from ...

   (i) Position 1 to 2  (ii) Position 2 to 3  (iii) Position 3 to 4  (iv) Position 4 to 5

   a) 

   b) 

   c) 

   d) 

   e) Choose a pattern above that can be described in two different ways. Which two single transformations could each produce the pattern?

7. Draw a shape on grid paper and make your own pattern by a combination of slides, rotations and reflections. Explain which transformations you used in your pattern.