1) a) Sort these 2D shapes in the Carroll diagram. Put the letters A-E in the correct places.

<table>
<thead>
<tr>
<th>Regular Polygon</th>
<th>Irregular Polygon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadrilateral</td>
<td></td>
</tr>
<tr>
<td>Not a Quadrilateral</td>
<td></td>
</tr>
</tbody>
</table>

b) Write the name of a different 2D shape that is an example of an irregular quadrilateral in the correct place on the diagram.

c) What type of triangle must be placed in the 'regular' and 'not a quadrilateral' section?

2) Draw an example of an irregular hexagon. Convince your partner that you have drawn an irregular hexagon.

1) a) Niall says that this rhombus is a regular polygon because all the sides are the same length.

Do you agree? Explain your answer.

b) Is a rhombus always an irregular polygon? Explain your answer.
1) a) Terri has sorted some polygons in a Venn diagram. What could the labels be for each set?

A

B

b) Draw a different 2D shape to those shown that could go in any two sections of the Venn diagram.

2) Create your own Venn diagram with three intersecting circles, as shown, to sort regular and irregular polygons alongside other properties of your choice.
1) a) Name three different 3D shapes that have at least one rectangular face.

   ________________________________________________________

   b) Name two different 3D shapes that have a curved surface.

   ________________________________________________________

   c) Name two different 3D shapes that have more than four but fewer than eight vertices.

   ________________________________________________________

2) Thinking about these 3D shapes, which could be the odd one out and why? Can you think of more than one example?

   ________________________________________________________

1) True or False?

   a) A cylinder is a type of prism.

   b) A cuboid is the only 3D shape to have rectangular faces.

   c) A triangular prism has six vertices.

2) Arnold is looking carefully at a square-based pyramid. He says:

   Investigate to find out if this is true for all pyramids.

   What have you learnt from your investigation? What are your findings?

   ________________________________________________________

   ________________________________________________________
1) Saira wants to create a net of the cube shown below. How should she colour
the net to ensure it looks like the picture shown when constructed?

Is there more than one way to achieve this?

______________________________________________________________________

______________________________________________________________________
1) Pascal wants to plot the coordinate (3,5) but is unsure how to do it. Write an explanation for Pascal to help him learn how to plot and read coordinates. Remember to use mathematical vocabulary.

2) Jenni has started to plot the vertices of a square. What are the coordinates of the vertices she has plotted?

- Vertex A ( , )
- Vertex B ( , )

Now plot the other two vertices, label them C and D and record the coordinates.

- Vertex C ( , )
- Vertex D ( , )

1) Taylor and Samira have put a red dot on the grid to plot the final vertex of a rectangle.

- The coordinates of the vertex we have plotted is (5,2)
- The coordinates of the vertex we have plotted is (2,5)

Who do you agree with? Circle Taylor or Samira. Explain the mistake that the other person has made.

2) Philip has plotted two vertices of a right-angled triangle. Complete the following sentences about the third vertex:

- a) The third vertex could be ( , )
- b) The third vertex can't be ( , )

because ____________________________________________
1) Sean has drawn a square in the first quadrant but has now hidden the x and y axes. Using the coordinates given, can you work out the missing coordinates?

```
A (      ,      )  B (      ,      )  
(3,2)          (6,5)
```

2) The same square has now been moved to a different place on the first quadrant. Sean has given one set of coordinates for one of the vertices. Can you work out the coordinates for the other three vertices?

```
A (      ,      )  B (      ,      )  C (      ,      )  
(4,6)          (6,5)
```

3) 

a) Draw a 2cm square on a coordinate grid and label the coordinates of each corner. Can you spot a pattern between the coordinates of opposite vertices? If you need a hint, try finding the difference between the x and y coordinates.

b) Investigate if the same pattern occurs when you draw 2cm squares in different positions on the grid.

c) Predict the patterns you will find in squares of different sizes. Prove it.