

**Annual Examinations for Secondary Schools 2020**

**YEAR 9                                  GRAPHICAL COMMUNICATION                                  TIME: 2 hours**

**Instructions**

- Write your name and class on all sheets.
- Attempt ALL questions.
- All answers are to be drawn accurately with instruments, unless otherwise stated.
- All construction lines MUST be left on each solution to show the method employed.
- Drawing aids may be used.

**Information**

- All dimensions are in millimetres.
- Estimate any missing dimensions.
- Marks will be awarded for accuracy, clarity and appropriateness of construction.

**This section is for teachers' use only.**

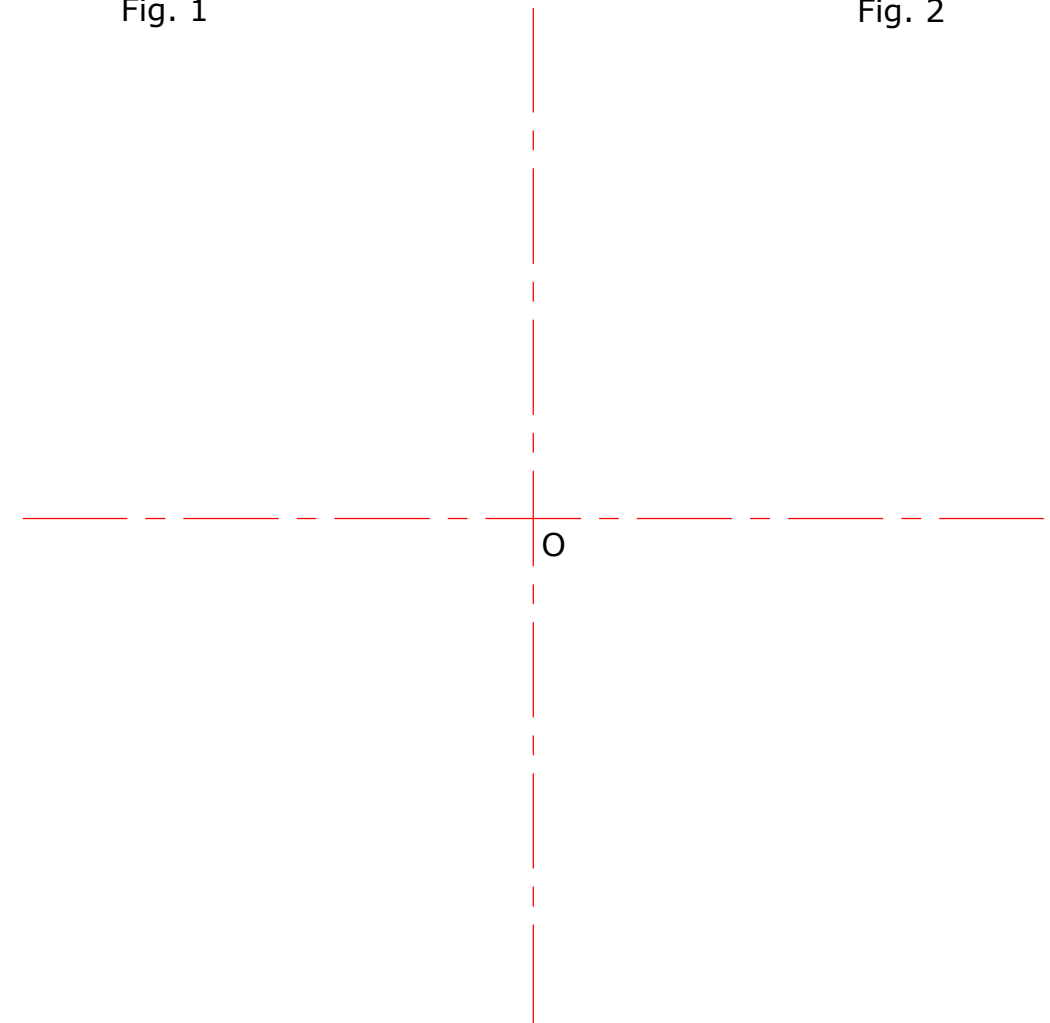
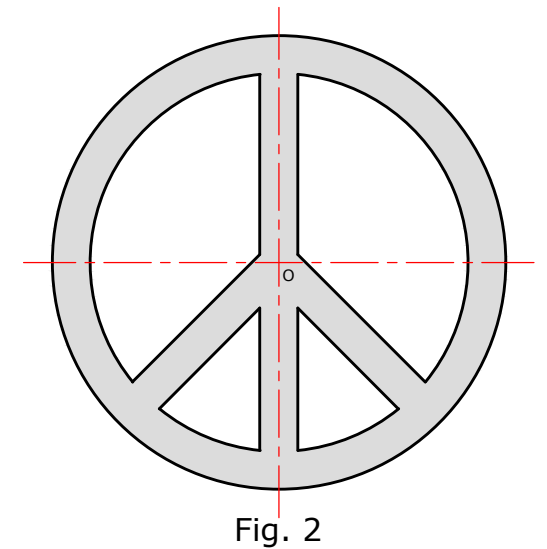
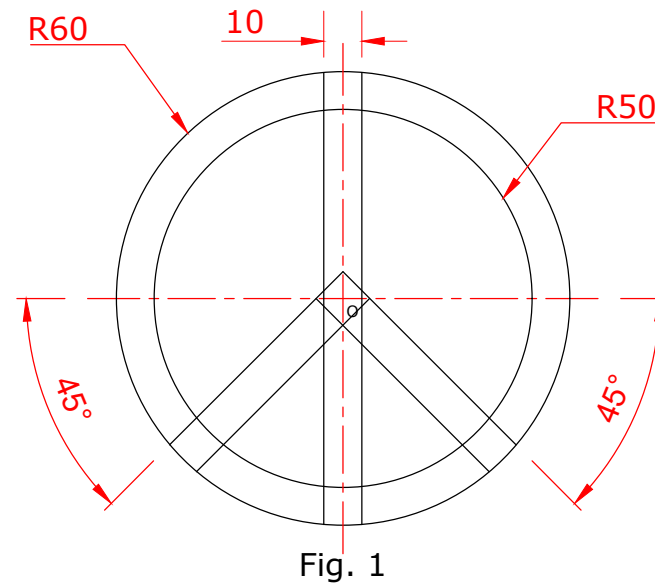
Question	1	2	3	4	5	6	Total
<b>Marks allotted</b>	12	16	18	18	16	20	100
<b>Marks awarded</b>							

**Question 1: Geometry.**

Fig. 1 shows the construction details of the peace symbol, while fig. 2 shows the finished version of the same symbol. Construct this symbol using the information given. Use center O as the starting point and apply light shading to the finished drawing as shown in fig. 2.

Note: Material thickness is 10mm throughout.

(12 marks)



Question 2: Circles in contact.

Fig. 3 shows the outline of a detergent bottle formed by circles in contact, while fig. 4 shows the same bottle in 3D. Construct the outline of this detergent bottle on the starting centre lines given.

Note: Parts of the outline have been given.

(16 marks)

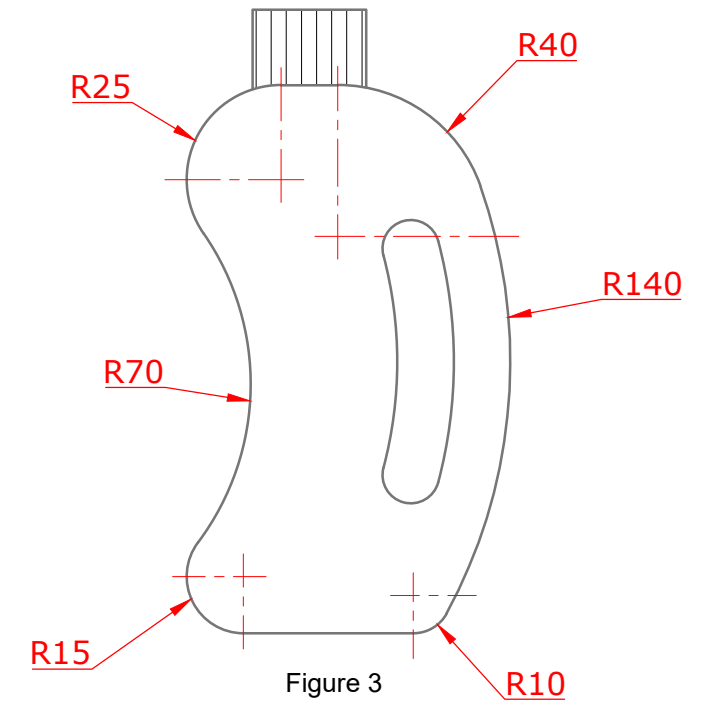
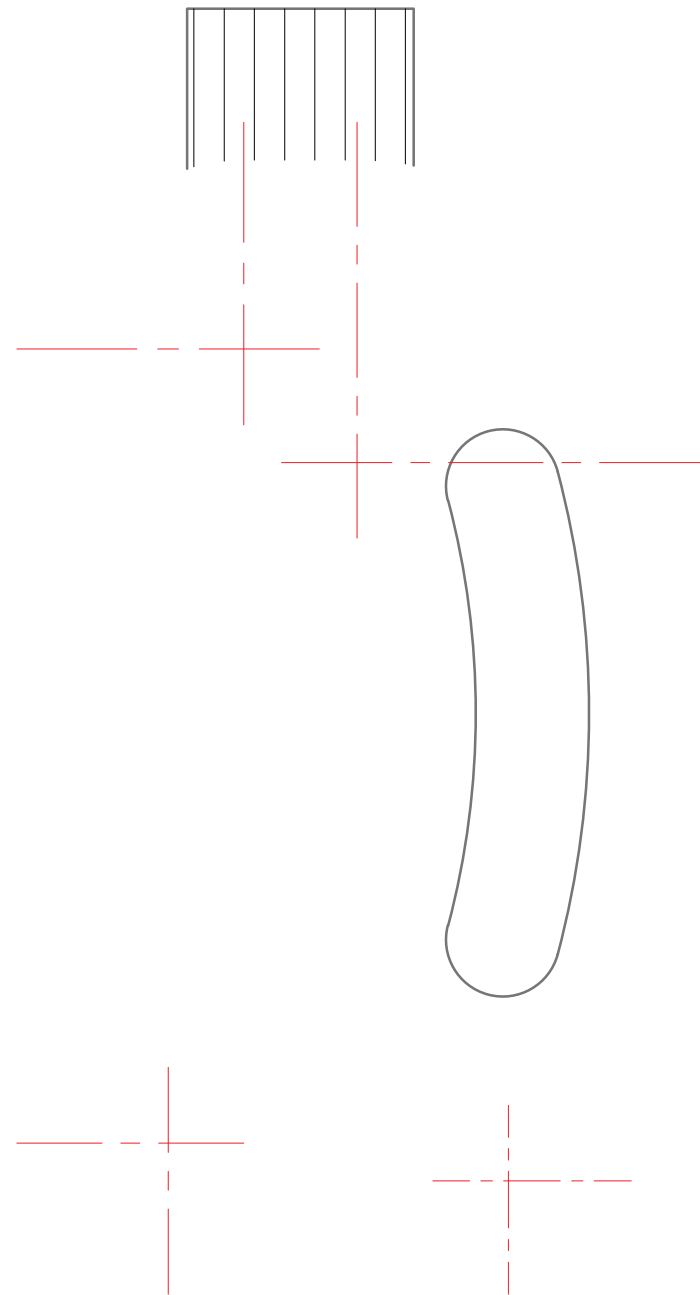


Figure 3

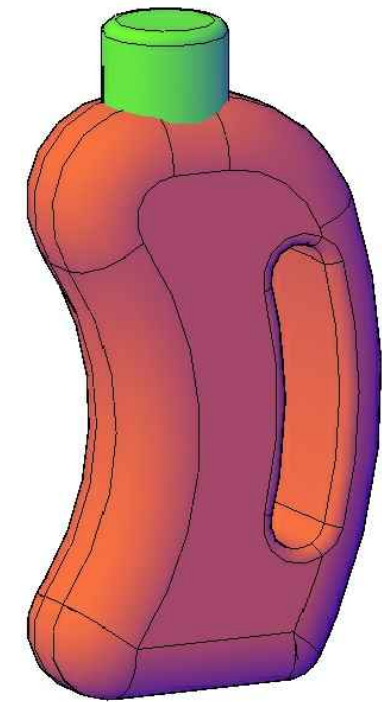
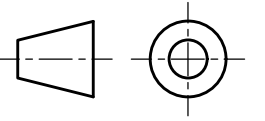


Figure 4

Question 3: Orthographic projection.

Fig. 5 shows a plastic component that has been 3D printed. A dimensioned isometric projection and the end elevation of this component have been given. Add the **front elevation** and **plan** to complete the orthographic projection in first angle.



(18 marks)

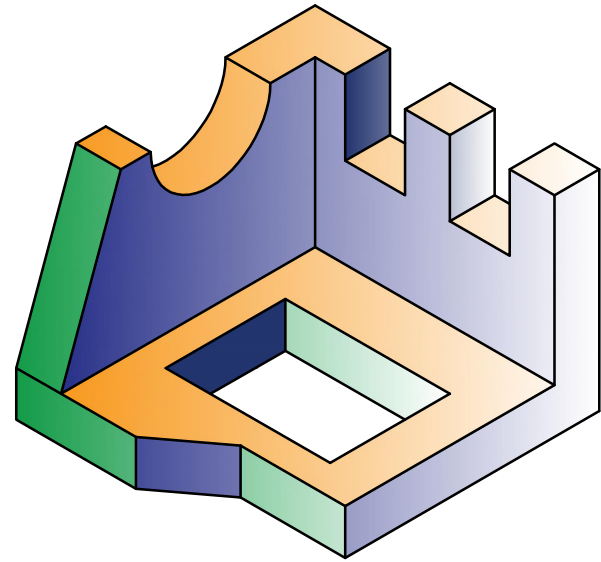
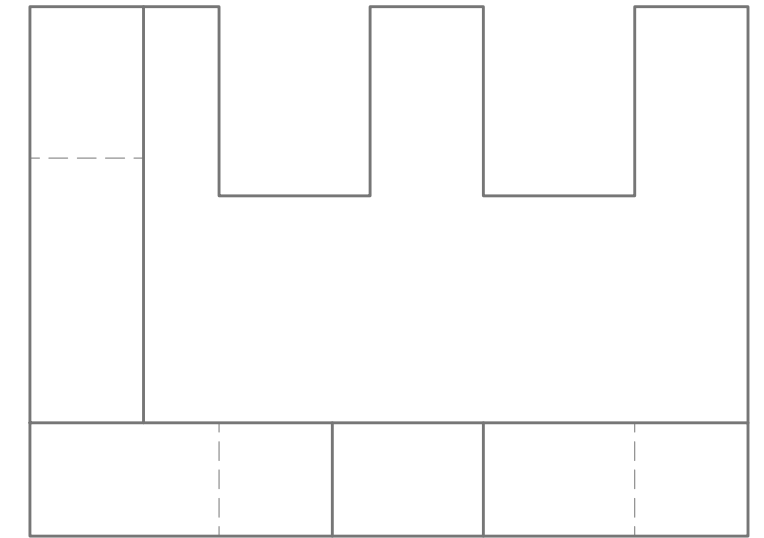


Figure 5



END ELEVATION

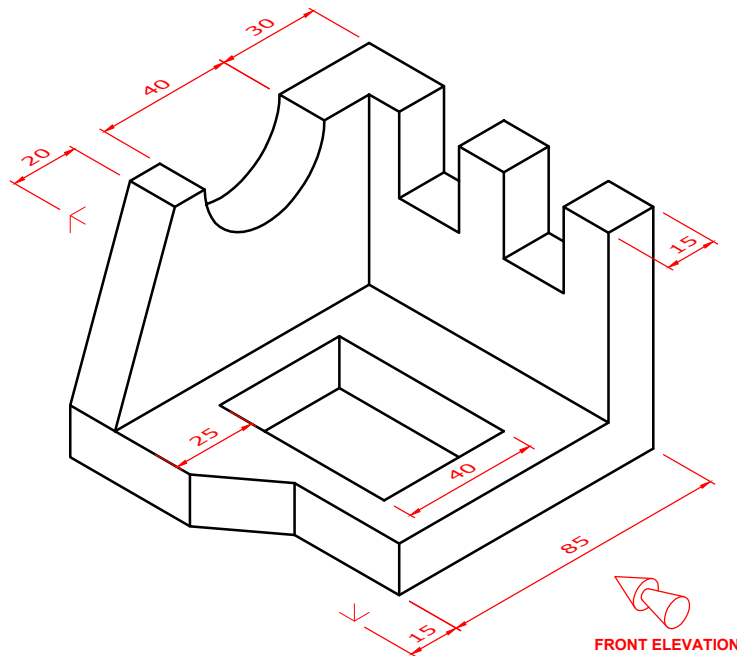


Figure 6

Question 4: Oblique.

Fig. 7 shows the isometric drawing of a concrete pillar. Draw a cabinet oblique projection of this structure on the starting lines provided. Take the measurements directly from the isometric drawing.

(18 marks)

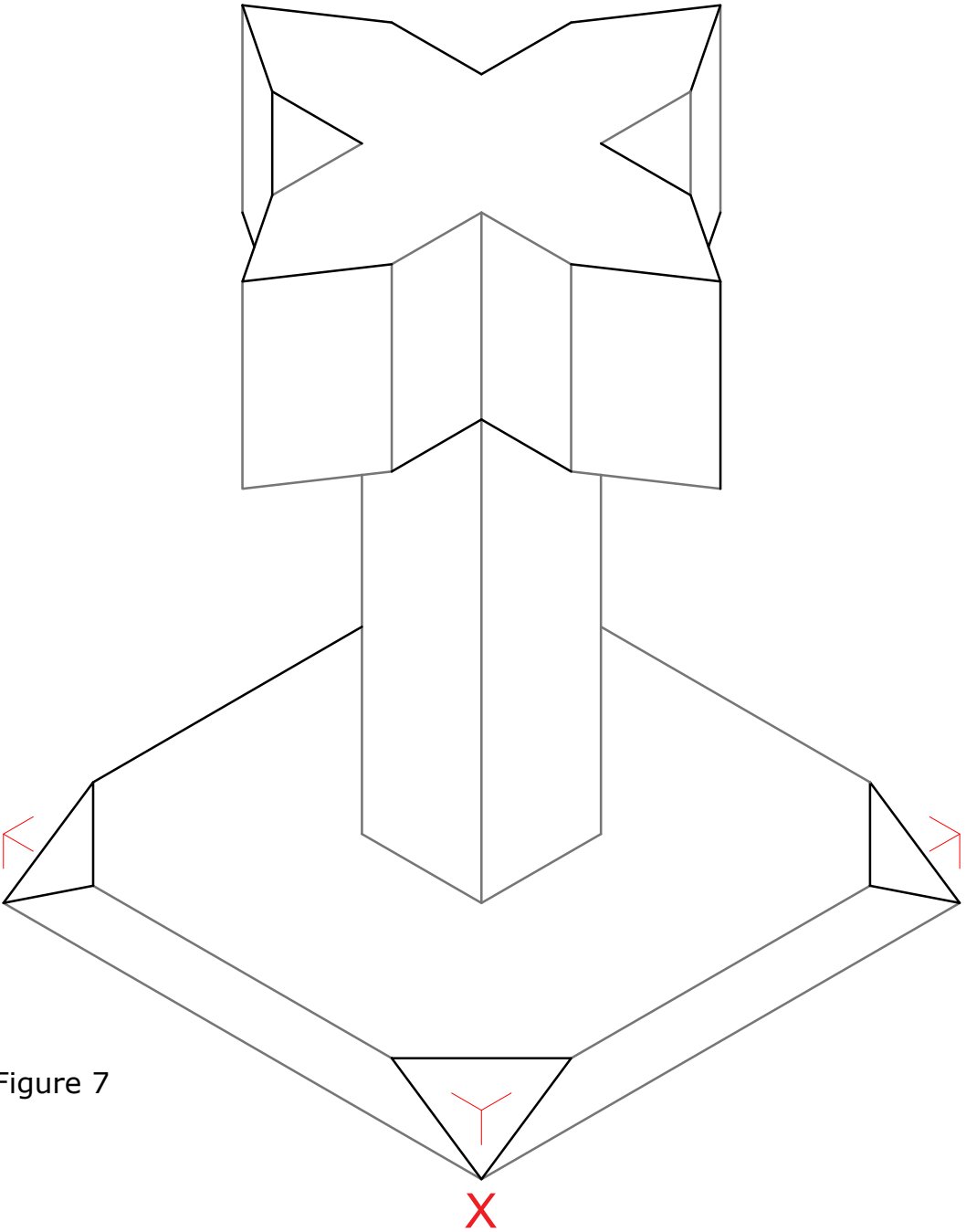
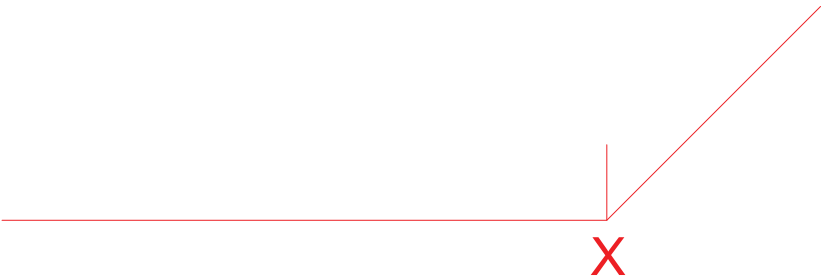


Figure 7



Question 5: Polygons and circumscribed circle.

Fig. 8 shows the front elevation of the entrance of a theme park. Complete the drawing on the given starting lines by:

- a. constructing an octagon in the given square;
- b. constructing a circumscribed circle to the isosceles triangle on top;
- c. constructing the two hexagons.

(16 marks)

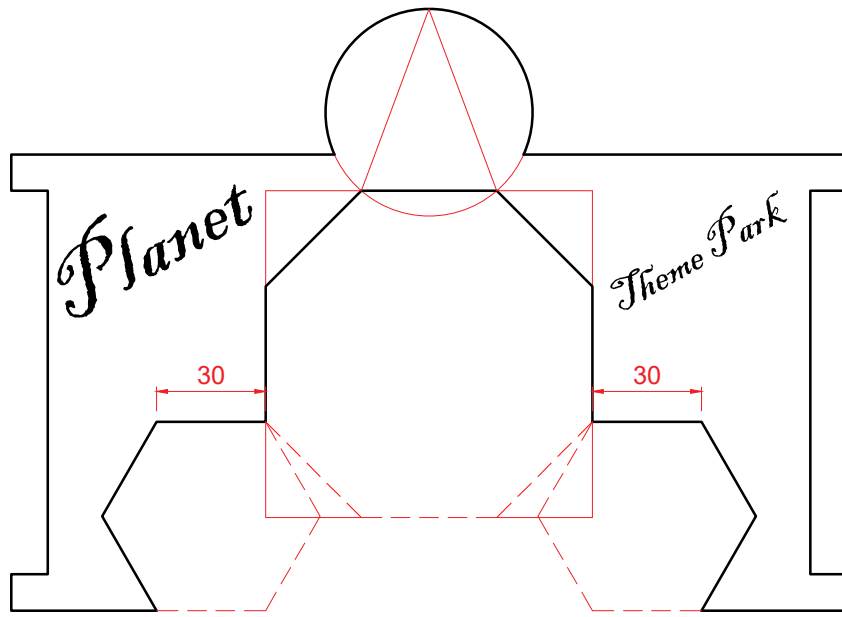
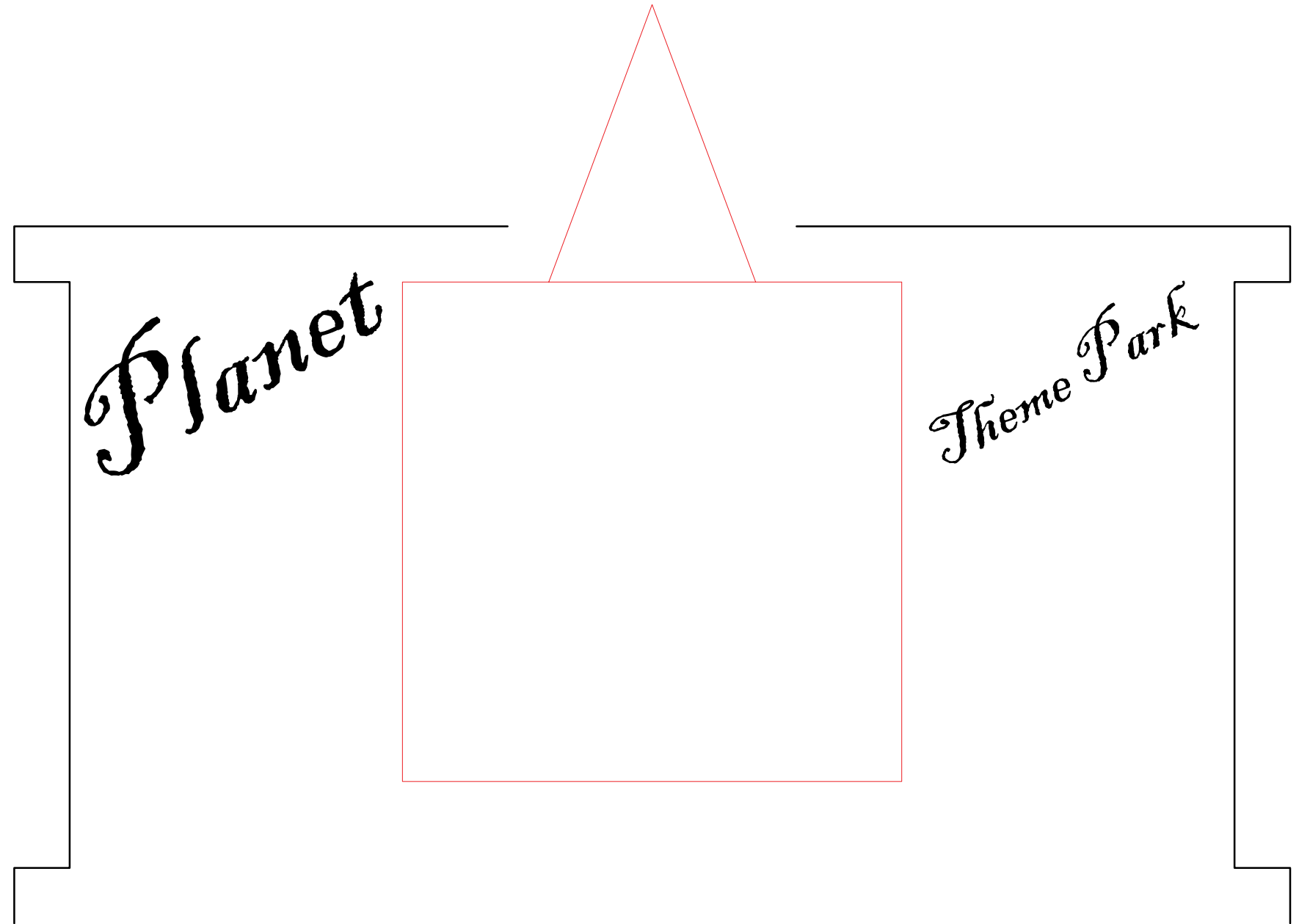


Figure 8



Question 6: Truncated prism and truncated cylinder.

Fig. 9 shows an isometric projection of a bluetooth speaker. The front elevation and plan of this speaker are given.

- a. Construct the end elevation of the speaker;
- b. Construct the true shape of the top part of the speaker (ellipse).

(20 marks)

