

Annual Examinations for Secondary Schools 2020

YEAR 10 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
Marks allotted	18	15	15	16	16	20	100
Marks awarded							

Question 1: Ellipse.

Fig. 1 shows the arrangement of a chocolate egg together with its packaging. The egg is in the shape of an **ellipse** having a major axis of **160mm** and a minor axis of **80mm**. The base of the packaging consists of two **normals** marked by points **X** and **Y** and a platform. By using any accepted method, construct:

- the ellipse;
- the normal at point X and mirror it at point Y;
- and complete the base.

(18 marks)

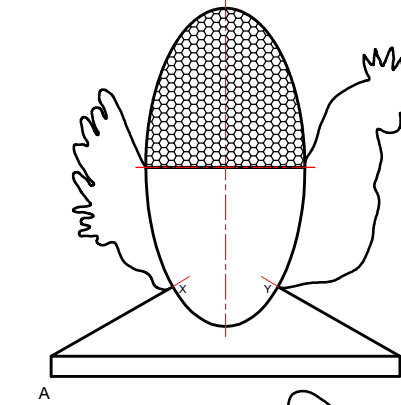
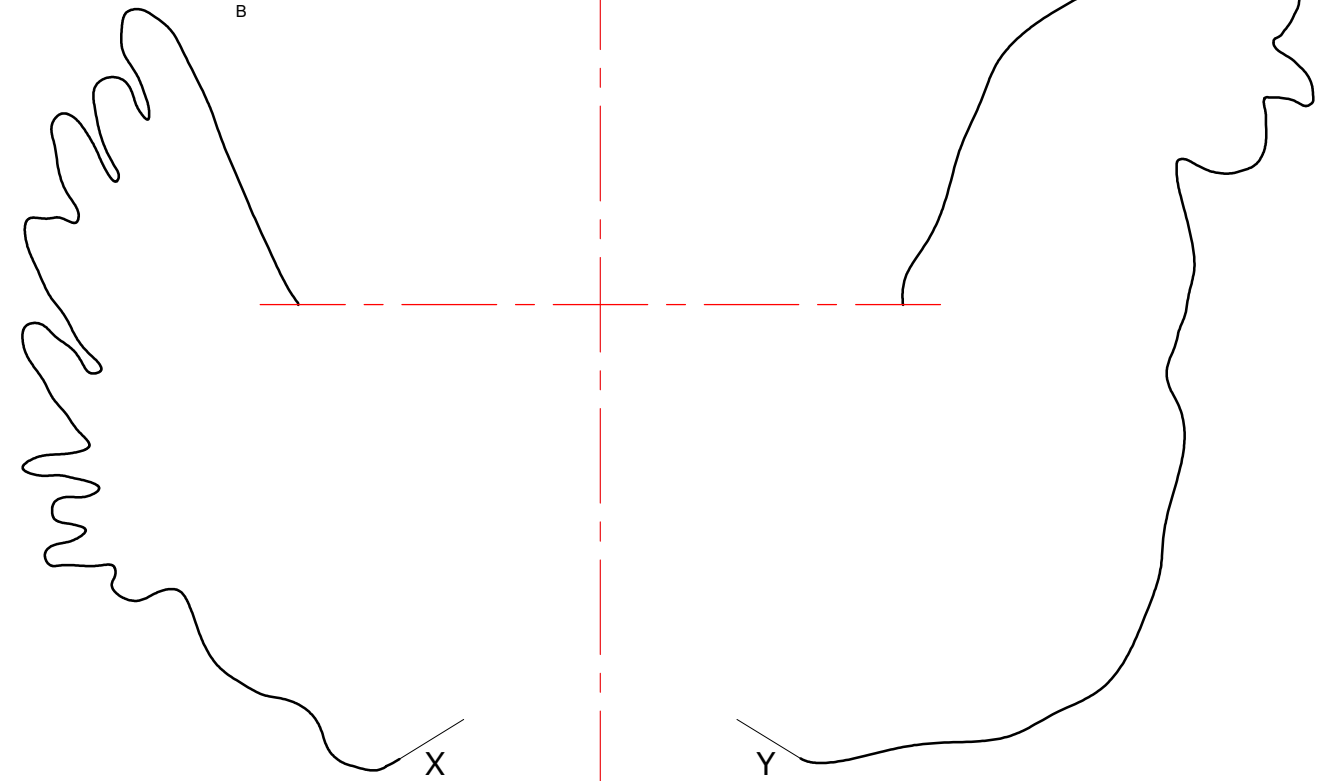


Fig. 1

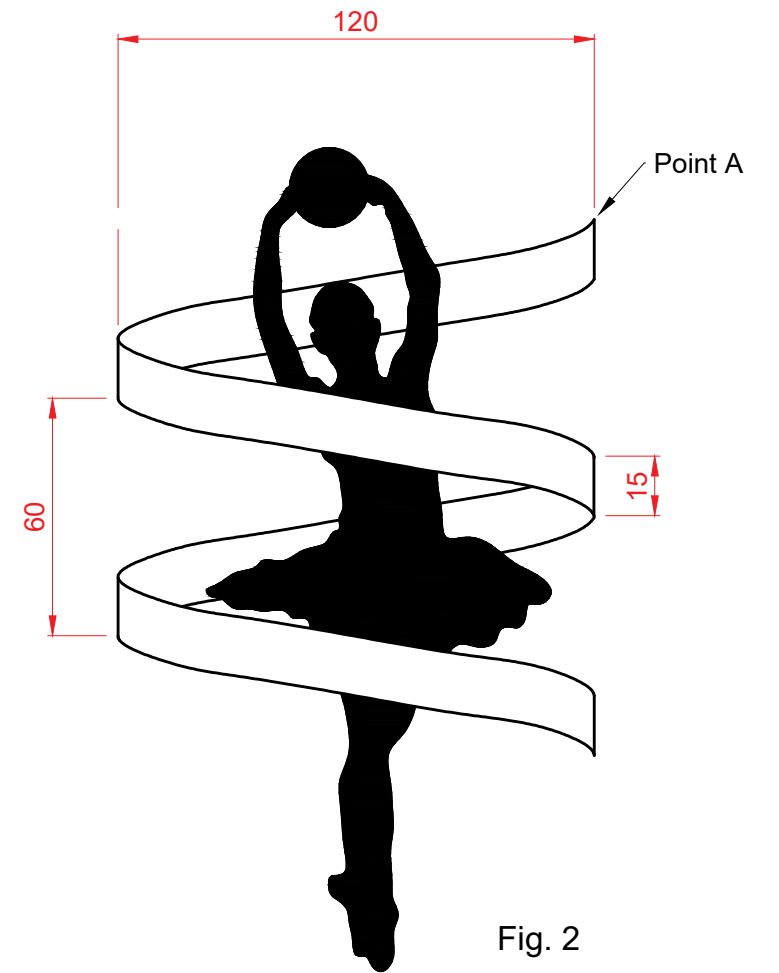
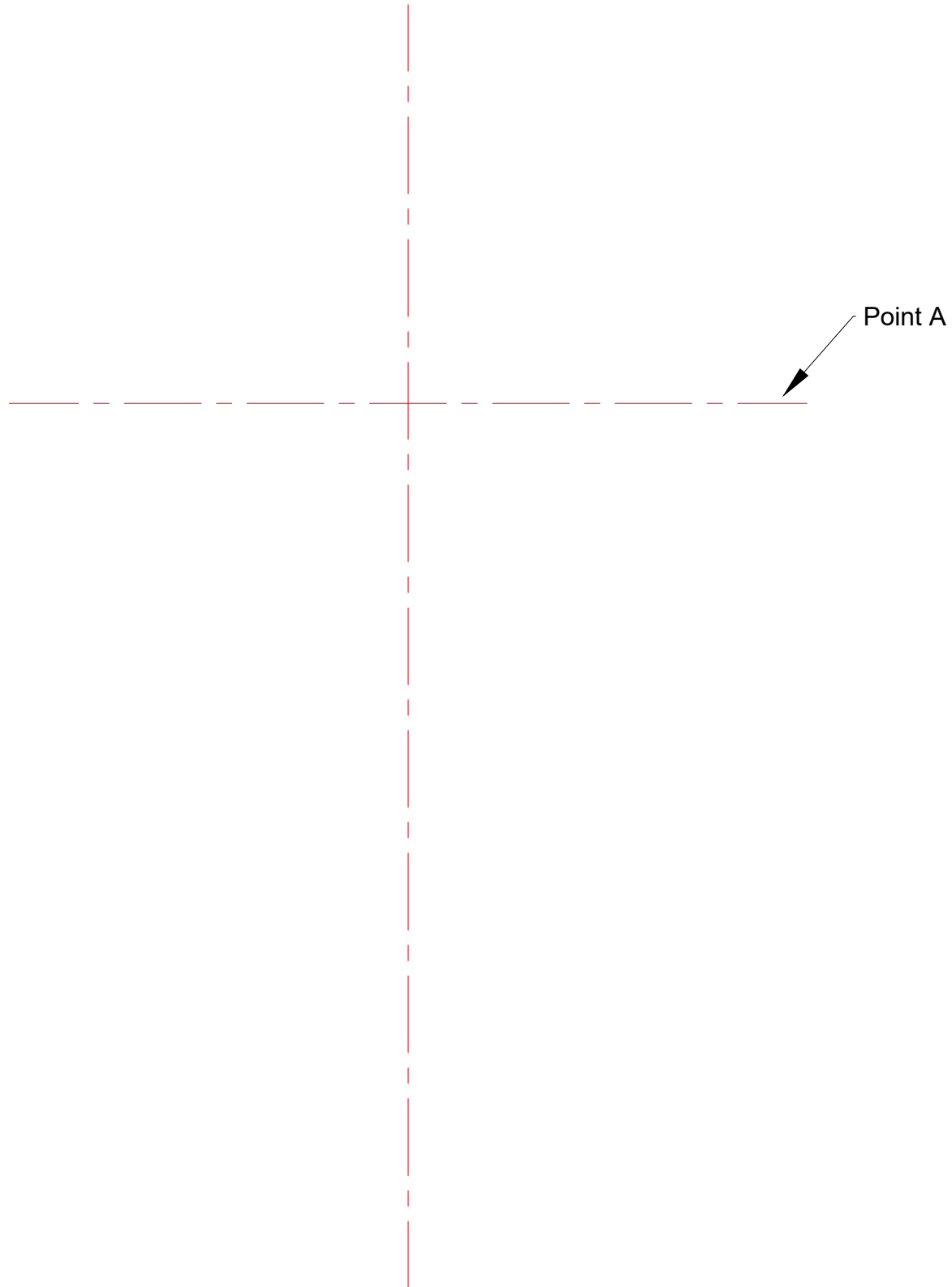


A _____ B

Question 2: Helix.

Fig. 2 shows the logo of a dance instruction studio. This logo is composed of two turns of a **left-hand flat-sectioned helix** wrapped around the figure of a Ballerina. Using the measurements given, construct two turns of this left-hand flat-sectioned helix on the given start lines. The **lead** of this Helix is **60mm** and its **outside diameter** is **120mm**. Do not draw the Ballerina.

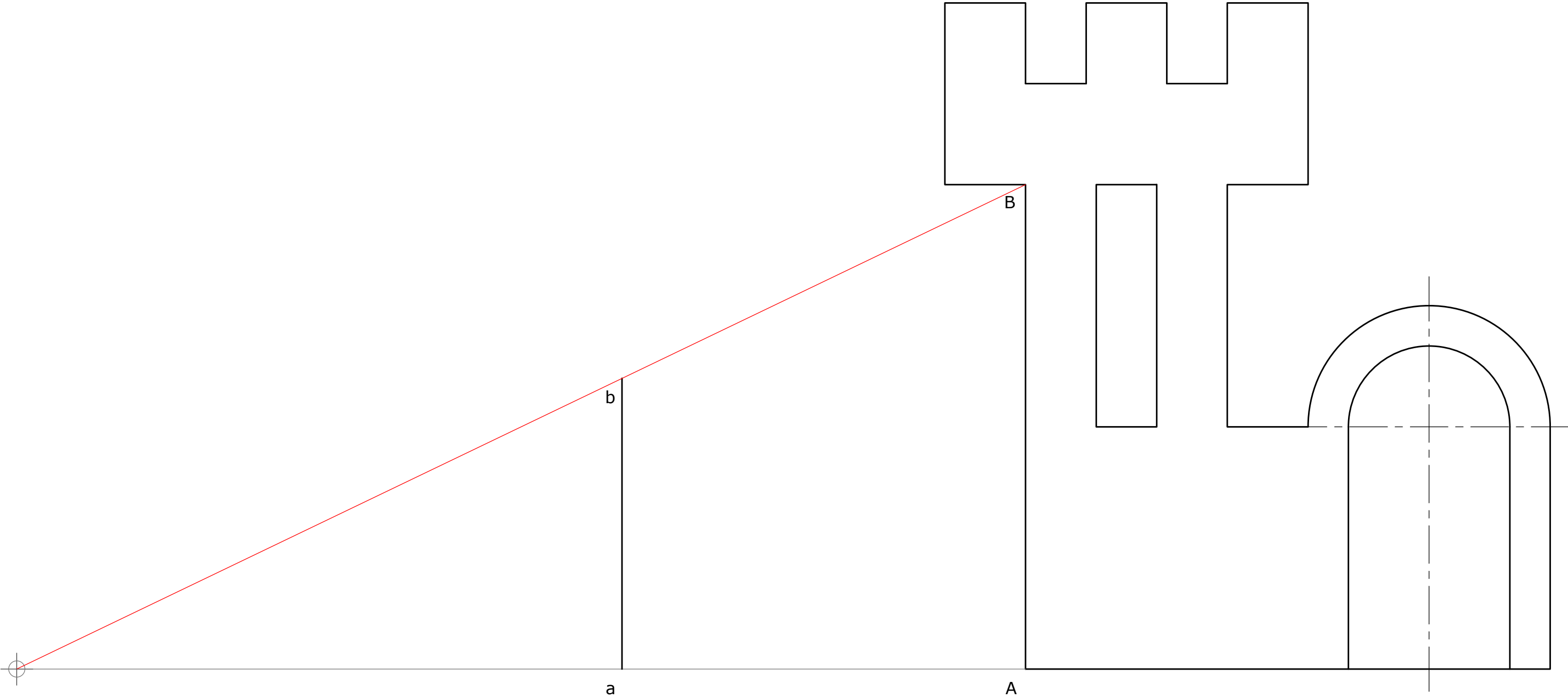
(15 marks)



Question 3: Polar reduction.

By using the polar reduction method, reduce the size of the castle shown so that line A-B becomes a-b.

(15 marks)



Question 4: Sectioning.

Fig. 3 and fig. 4 show pictorial renditions of a support bracket. The complete plan and an incomplete sectional elevation of this block are given in orthographic projection.

- Complete the sectional elevation **A-A** and label both views.
- Use your pencil to render fig. 4 (material - metal).
- Label the type of orthographic projection used.

(16 marks)

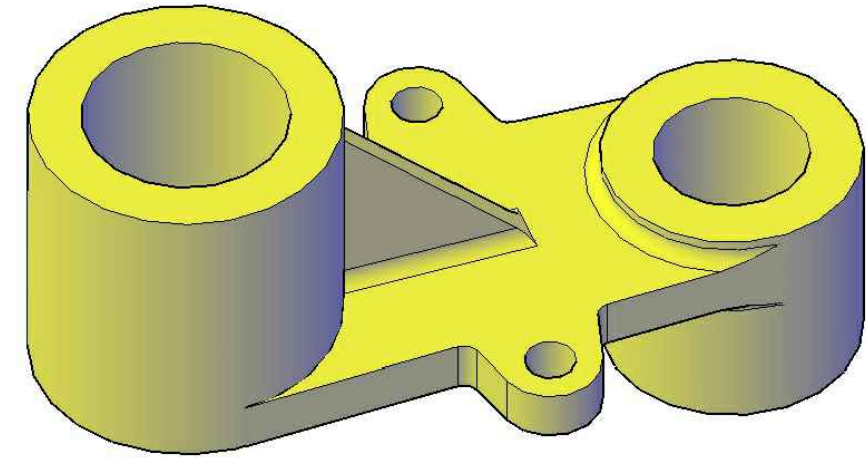
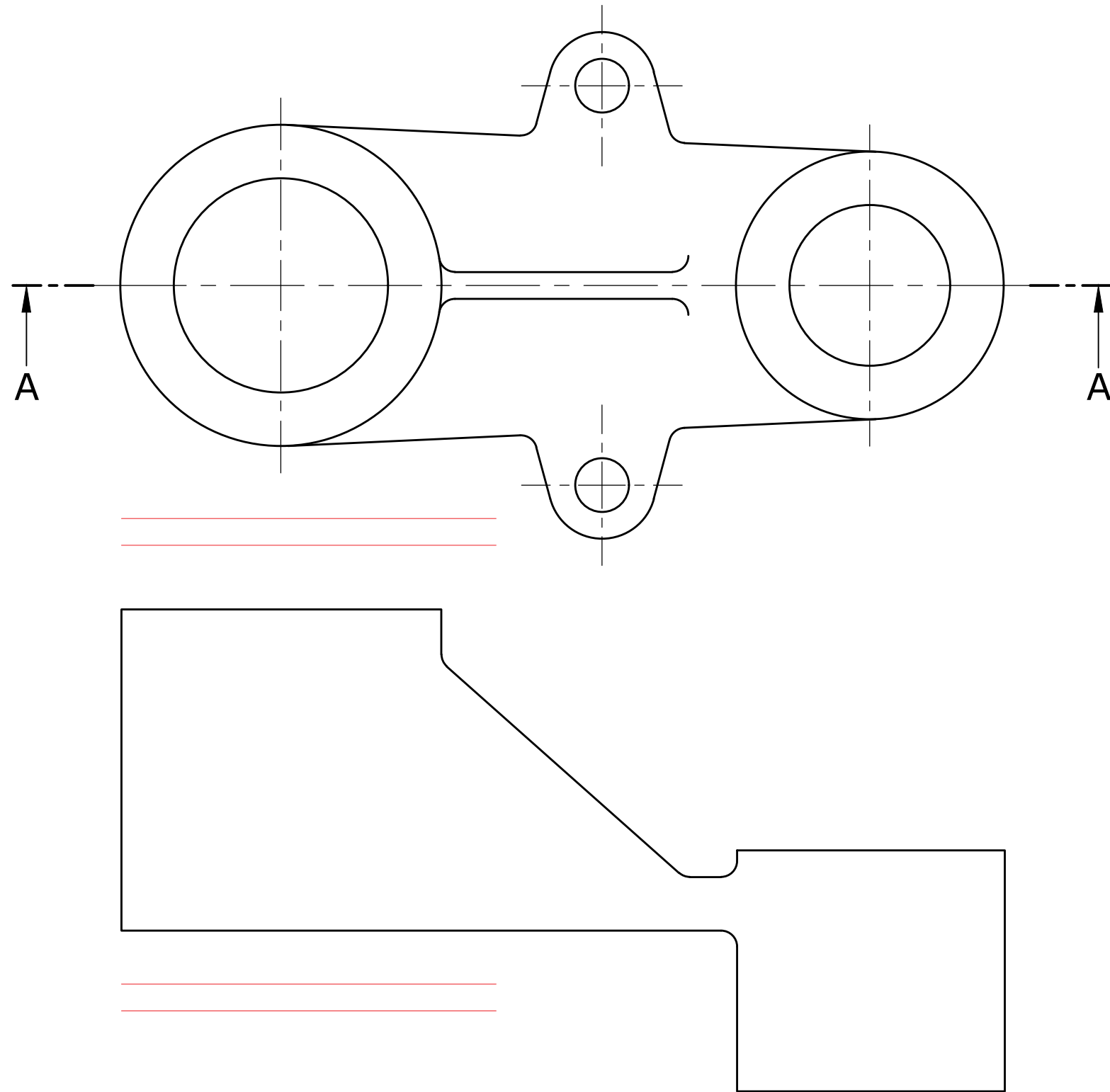


Fig. 3

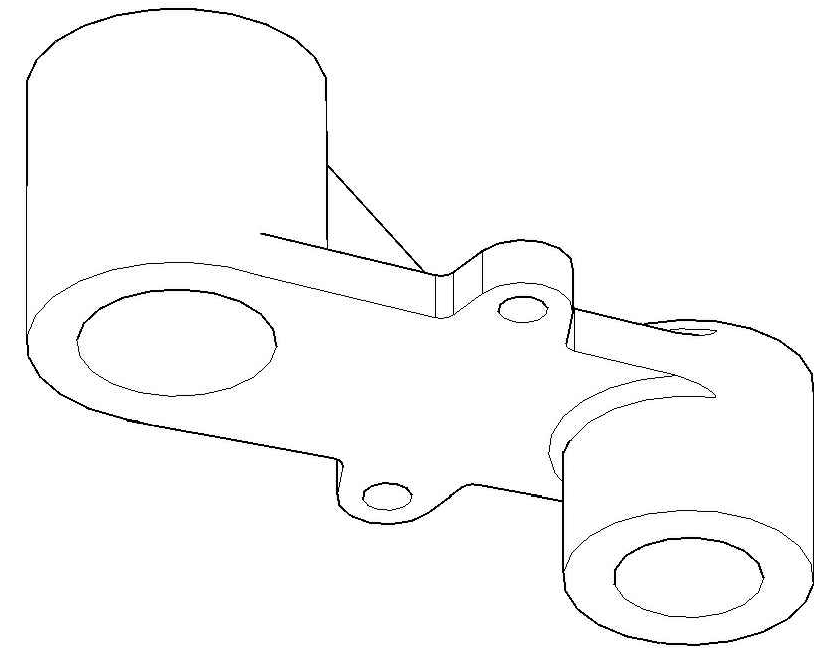
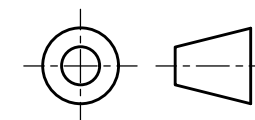


Fig. 4

Type of Orthographic Projection



Question 5: Assembly.

Fig. 5 and fig. 6 show exploded pictorial views of a food blender as seen from below and above respectively.

- a. Draw at least **one** preparatory sketch of the **assembled** blender;
- b. Draw an **assembled freehand pictorial** view of this blender.

Note: Do not shade your drawing.

(16 marks)

Final freehand drawing of assembled blender

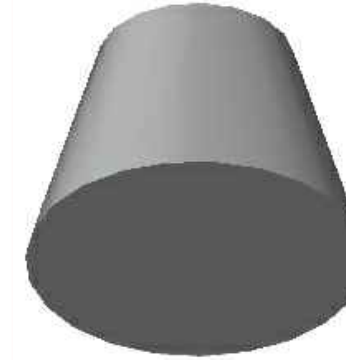
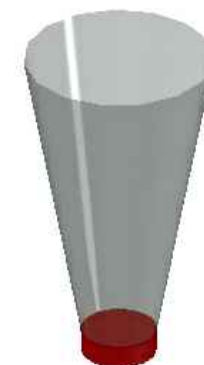
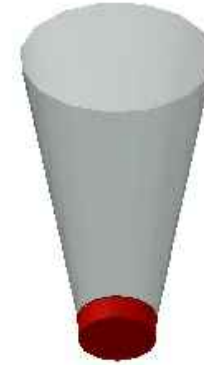
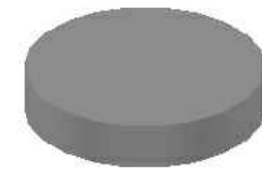


Fig. 5

Fig. 6

Preparatory sketch

Question 6: Perspective.

Fig. 7 shows an isometric view of an all-in-one pc. Use the dimensions given in fig. 8 to convert this isometric view into a **two-point perspective** drawing. Use the start lines and vanishing points given. Place point **X** as the lowest point in your drawing.

(20 marks)

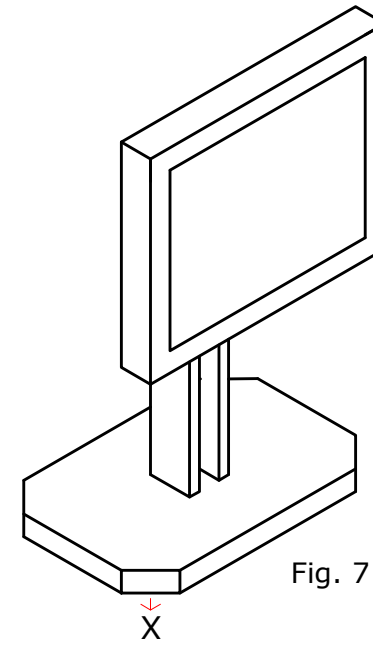


Fig. 7

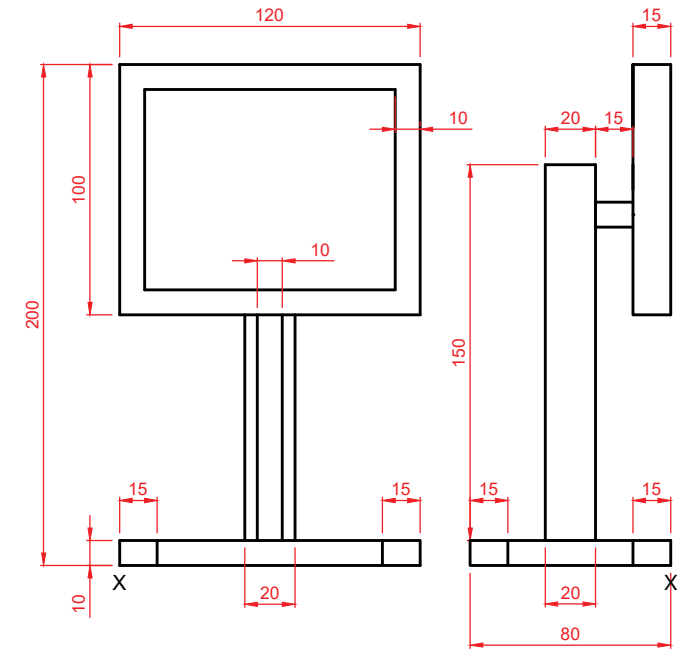


Fig. 8

VP1



VP2

