



Coimisiún na Scrúduithe Stáit

State Examinations Commission

Leaving Certificate Examination, 2025

Design & Communication Graphics

Ordinary Level

Section B and C (180 marks)

Thursday, 19 June

Morning, 9:30 - 12:30

This examination has three sections:

Section A	Core - Short Questions
Section B	Core - Long Questions
Section C	Applied Graphics - Long Questions

Section B

- Three questions are presented.
- Answer **any two** questions on drawing paper.
- All questions in Section B carry **60 marks** each.

Section C

- Five questions are presented.
- Answer **one** question (i.e. the option you have studied) on drawing paper.
- All questions in Section C carry **60 marks** each.

General Instructions:

- Construction lines must be shown on all solutions.
- The graphics presented are not necessarily drawn to scale and must not be used for scaling purposes.
- Write the question number distinctly on the answer paper in Sections B and C.
- Work on one side of the drawing paper only.
- All dimensions are given in metres or millimetres.
- Write your Examination number in the box provided in Section A and on all other sheets used.

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Section B - Core

Answer **any two** questions from this section on drawing paper.

- B-1.** The image on the right shows a modern house. The design of the house consists of three intersecting structures.

Fig. B-1 below shows the elevation and incomplete plan of a similar house. The outline profile of the central structure is shown on the right below. A 3D graphic is also given.



- Draw the given elevation and incomplete plan of the house.
- Complete the plan, showing all lines of interpenetration.
- Draw an end view of the house.

Scale 1:1

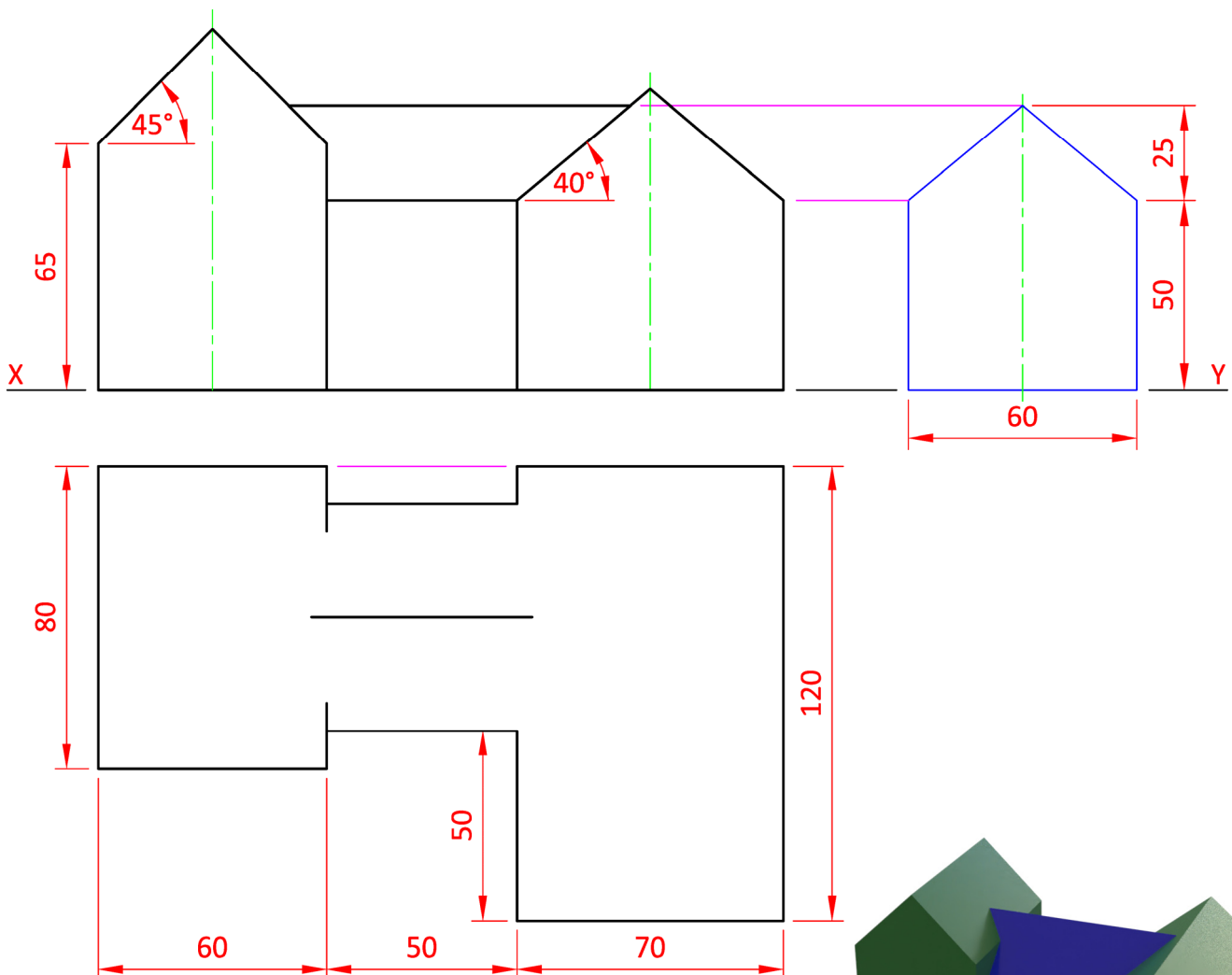
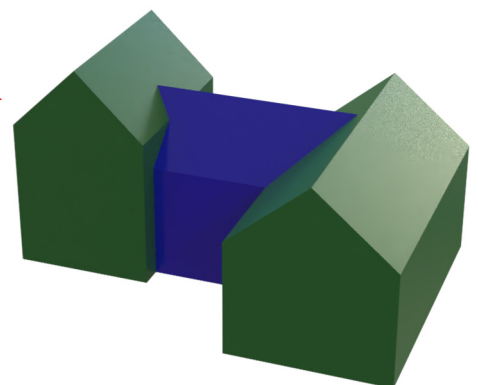


Fig. B-1



B-2. The image on the right shows a sports dugout.

Fig. B-2 below shows an incomplete isometric projection of a similar dugout. A 3D graphic is also given.

The elevation and plan of the dugout are shown in their required positions.

- Draw the given equilateral triangle **abc** and the axonometric axes **X**, **Y**, and **Z**.
- Draw the elevation and plan positioned as shown.
- Draw the axonometric projection of the base of the dugout.
- Complete the axonometric projection of the dugout top shelter and seat.

Scale 1:1

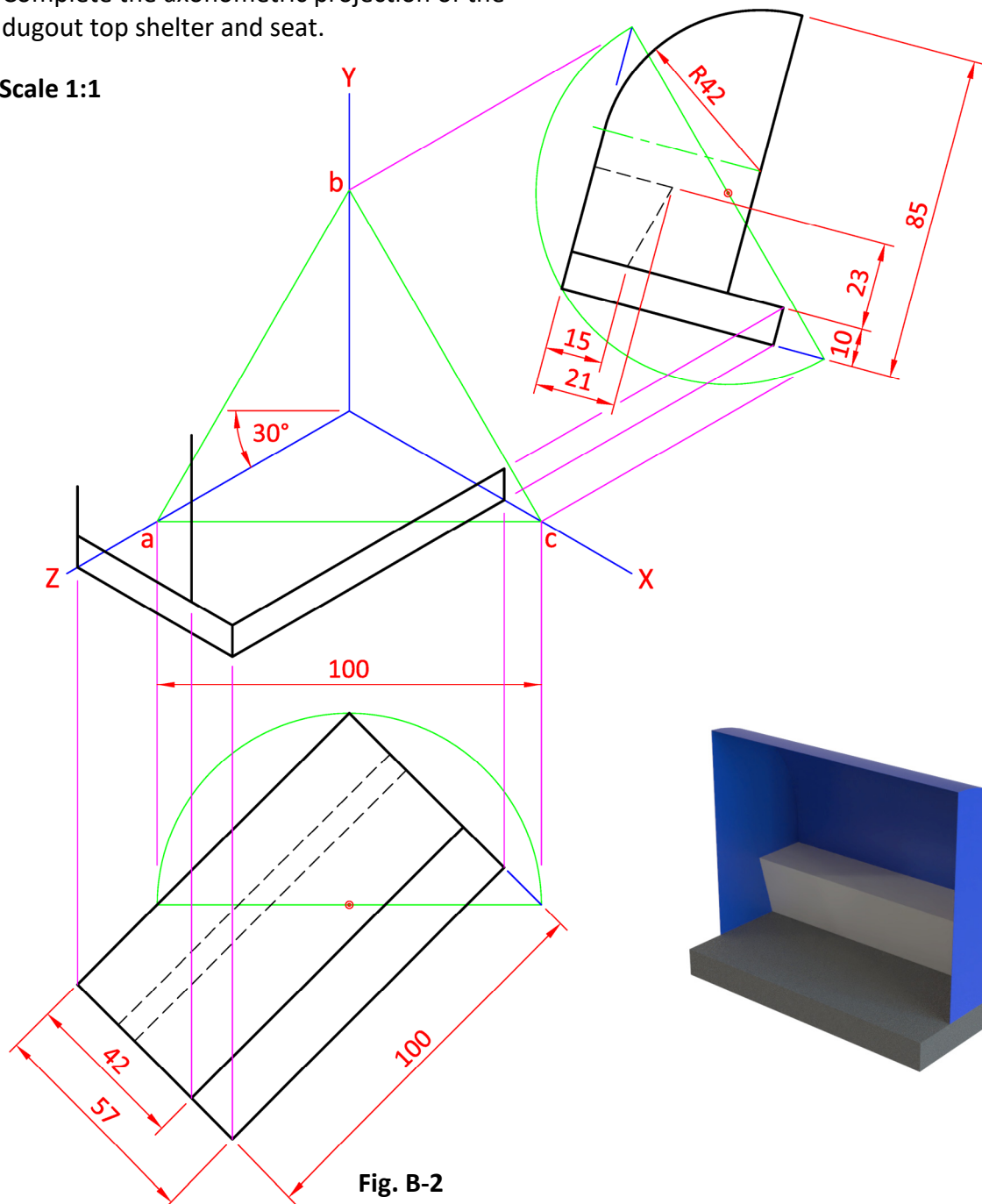


Fig. B-2

B-3. The image on the right shows a popular arcade game.

Fig. B-3 below shows an isometric view of a similar arcade game. A 3D graphic is also given.

- (a) Draw an elevation of the arcade game looking in the direction of the arrow.
- (b) Project a plan from the elevation.
- (c) Draw the auxiliary elevation of the **arcade game**, projected from the plan, which will include the true shape of surface **A**.

Scale 1:1

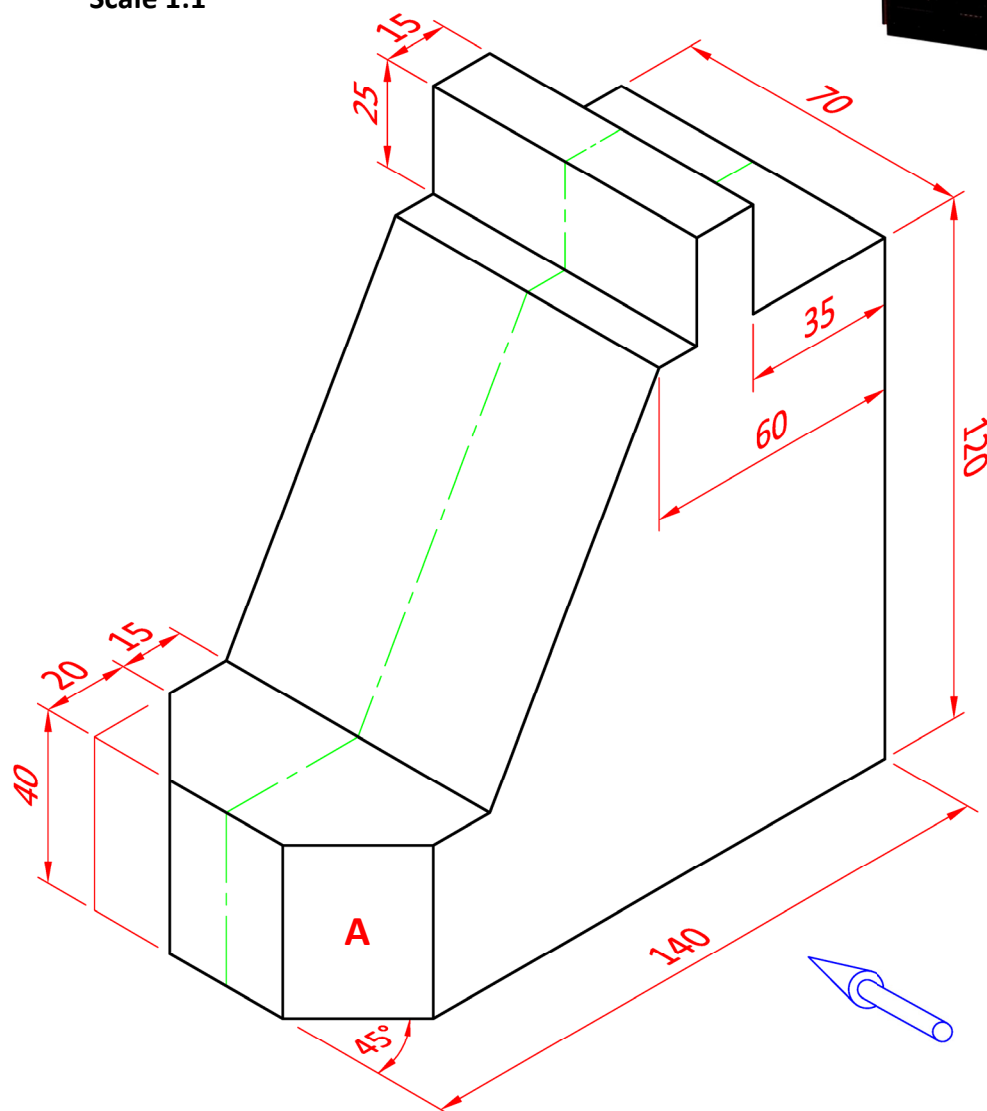
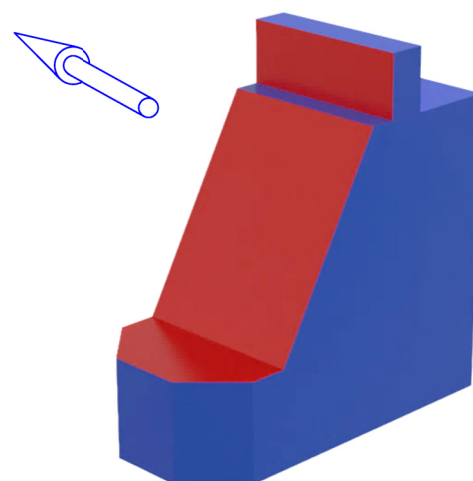


Fig. B-3



Section C - Applied Graphics

Answer **one** question (i.e. the option you have studied)
from this section on drawing paper.

Geologic Geometry

- C-1.** The image on the right shows a country road which required cuttings to accommodate it.

The accompanying map, located on the back page of Section A, shows ground contours at five metre vertical intervals.

- (a) On the map supplied, draw a vertical section (profile) on the line **AB**.
- (b) **CD** is the centreline of a proposed roadway which is level at an altitude of 30 m.



Using side slopes of 1 in 1 for the cuttings, complete the earthworks necessary to accommodate the roadway.

Note: The earthworks on the southern side of the roadway have already been completed.

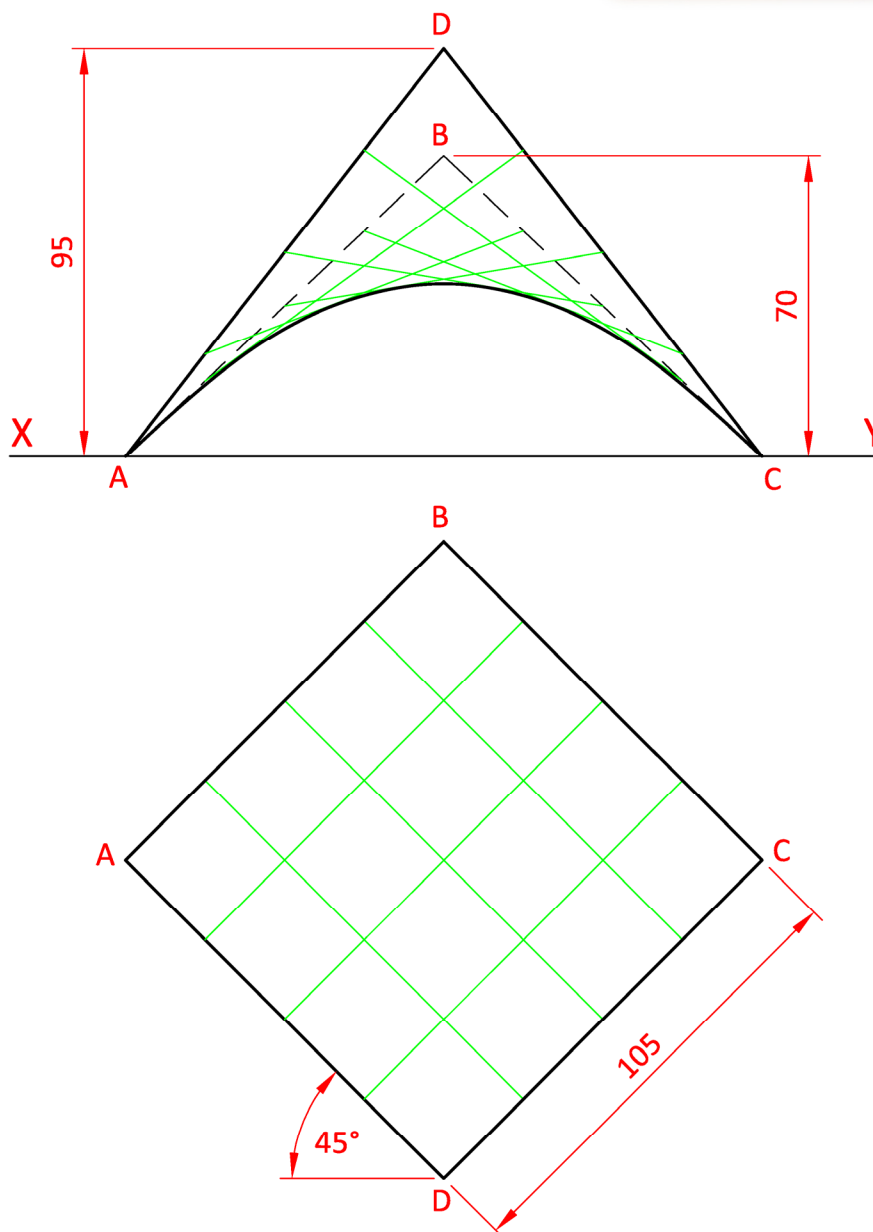
Scale 1:1000

Structural Forms

C-2. The image on the right shows pieces from the HyperTiles game. The game is made up of various forms of hyperbolic paraboloid pieces.

Fig. C-2 below shows the plan and elevation of a similar hyperbolic paraboloid piece which is square in plan.

- (a) Draw the given plan of the hyperbolic paraboloid piece.
- (b) Project an elevation from the plan.
- (c) Project an end view.



Scale 1:1

Fig. C-2

Surface Geometry

C-3. The image on the right shows an electric car charging station. A 3D graphic of a similar charging station is also shown.

The projections of a similar charging station are shown in Fig. C-3 below.

- (a) Draw the given elevation and plan of the charging station.
- (b) Project an end view.
- (c) Draw a one-piece surface development of the charging station.

Scale 1:1

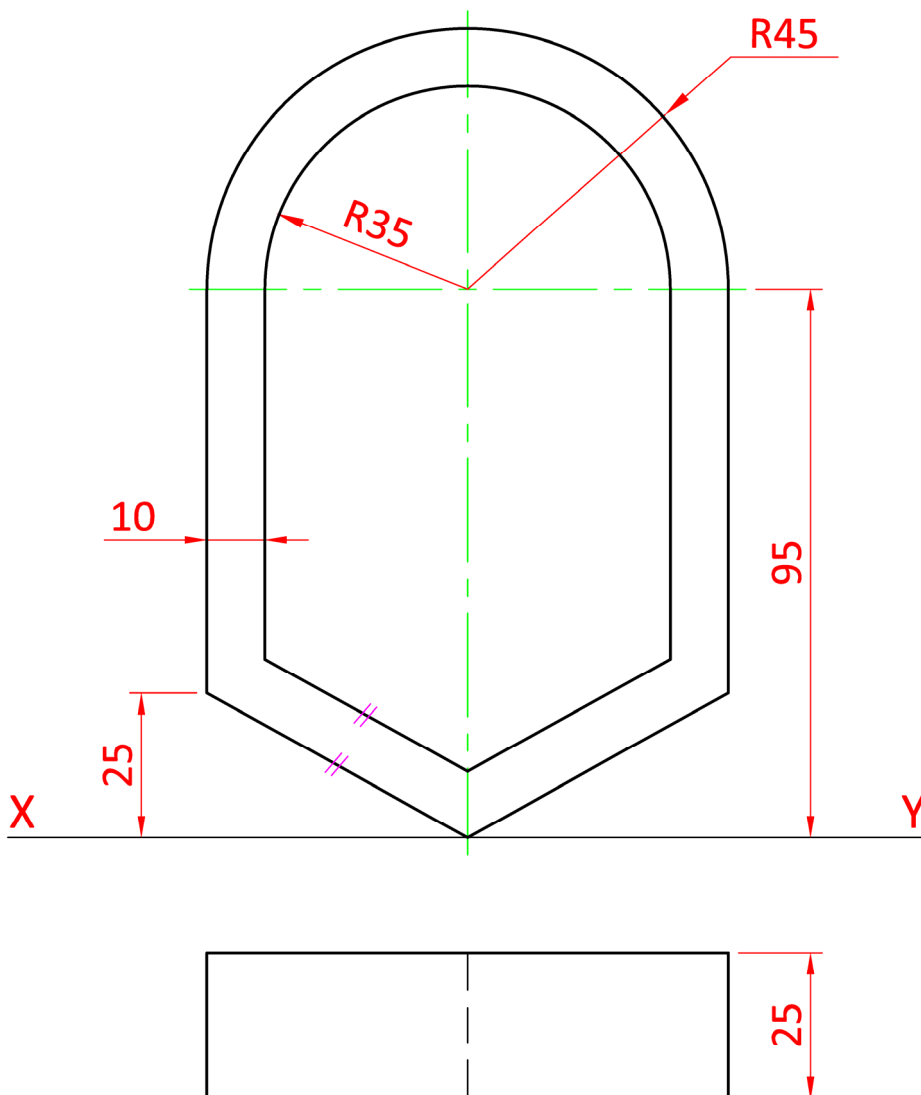
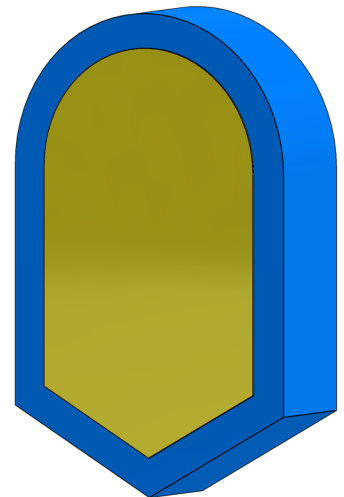


Fig. C-3



Dynamic Mechanisms

- C-4. (a)** The image below shows an excavator boring a hole. The auger of the excavator is based on a helix.

Fig. C-4 opposite shows the projections of portion of a similar partially completed helix.

- Draw the given elevation and plan.
- Complete the projections of the helix which moves in a clockwise direction from point **A** on the base to point **B** in one revolution.

Scale 1:1

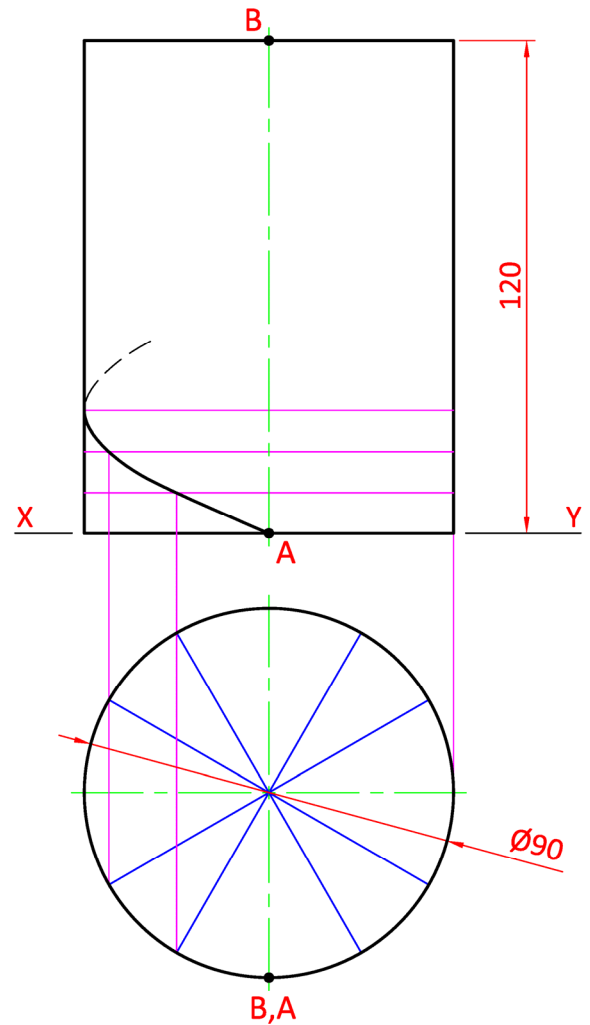


Fig. C-4

- (b)** The image on the right shows a camshaft from the fuel system of the excavator.

A cam imparts the following motion to the follower:

- 0° to 90° Rise 60 mm with uniform velocity
- 90° to 180° Dwell
- 180° to 360° Fall 60 mm with simple harmonic motion.



Draw the displacement diagram, using a distance of 15 mm to represent each 30° interval.

Note: It is not necessary to draw the cam profile.

Assemblies

C-5. The image on the right shows a wireless camera.

Details of a similar wireless camera are shown in Fig. C-5 below. A parts list and a 3D graphic of the camera are also shown.

Draw the **sectional end view A-A** of the assembled camera.

Note: Unless otherwise stated all fillets are radius 5 mm; any omitted dimensions may be estimated.

Scale 1:1

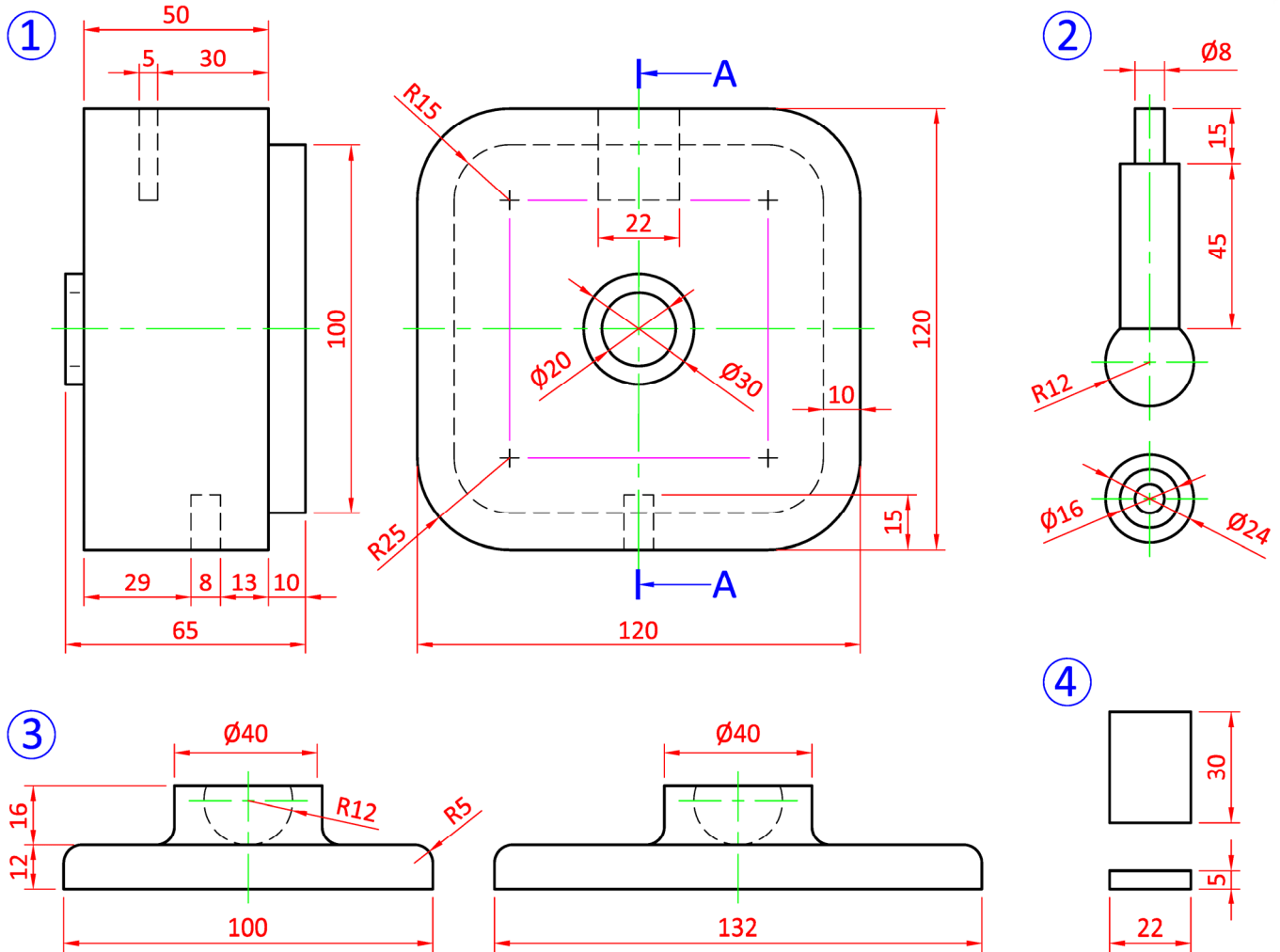


Fig. C-5

Part	Name	Qty.
1	Camera	1
2	Stem	1
3	Base	1
4	SD Card	1



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