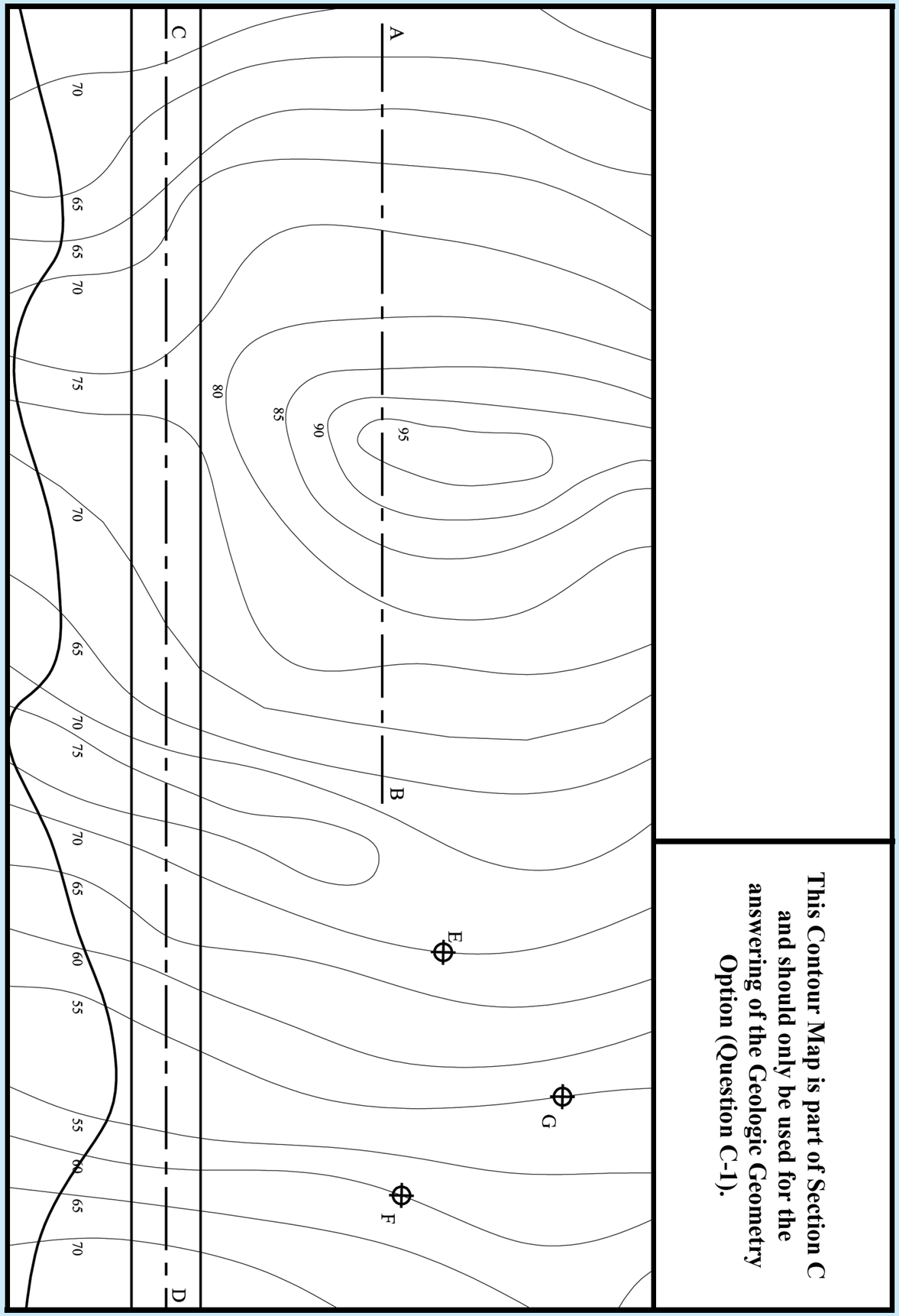


This Contour Map is part of Section C and should only be used for the answering of the Geologic Geometry Option (Question C-1).

L.84A

Pre-Leaving Certificate Examination, 2012

Design & Communication Graphics

Ordinary Level

Section A (60 marks)

Time: 3 Hours

This examination is divided into three sections:

SECTION A (Core - Short Questions)
SECTION B (Core - Long Questions)
SECTION C (Applied Graphics - Long Questions)

SECTION A
- Four questions are presented.
- Answer **any three** on the A3 sheet overleaf.
- All questions in Section A carry **20 marks** each.

SECTION B
- Three questions are presented.
- Answer **any two** on drawing paper.
- All questions in Section B carry **45 marks** each.

SECTION C
- Five questions are presented.
- Answer **any two** (i.e. the options you have studied) on drawing paper.
- All questions in Section C carry **45 marks** each.

General Instructions:
- *Construction lines must be shown on all solutions.*
- *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 name, school name and teacher name in the box below and on all other sheets used.*

Name:

School Name:

Teacher Name:

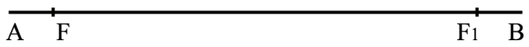
SECTION A - Core - Answer Any Three of the questions on this A3 sheet

A-1. The 3D graphic below shows a garden light.
The top surface of the light is elliptical as shown.

The drawing on the right shows the major axis of the ellipse AB and its focal points F and F_1.

(a) Locate the minor axis and construct the complete ellipse.

(b) Locate a point P on the curve which is 30 mm from the major axis and construct a tangent to the curve through this point P.

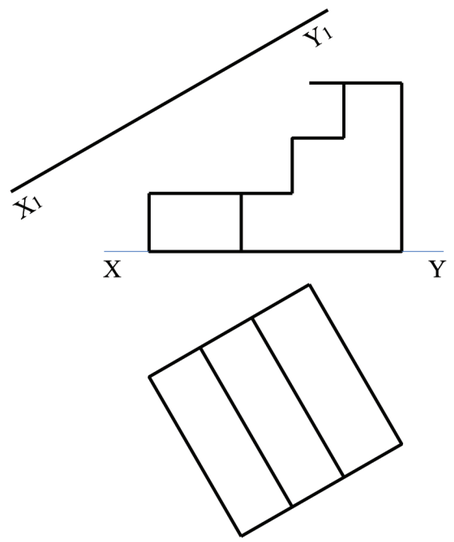


A-2. The 3D graphic below shows a set of concrete steps.

The plan and incomplete elevation of the steps are shown on the right.

(a) Complete the elevation.

(b) Draw an auxiliary view of the steps on the given X_1Y_1.



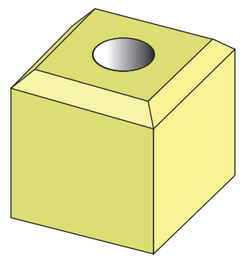
A-3. The 3D graphic below shows a candle holder. It is based on a cube which has a chamfered top as shown.

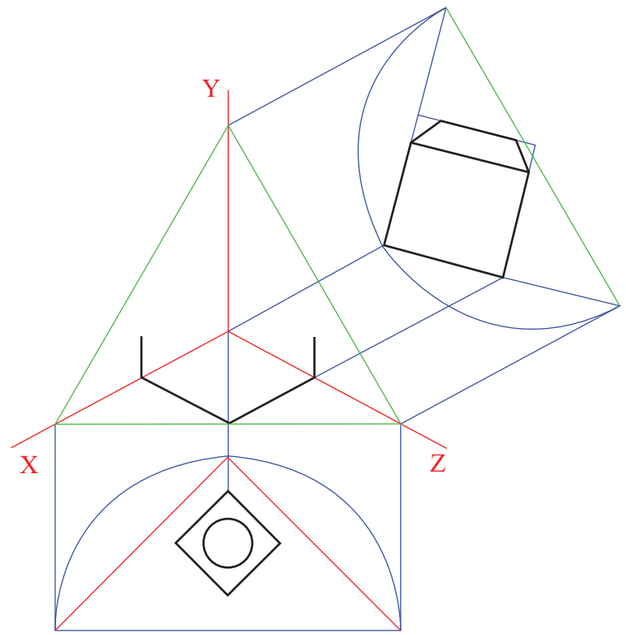
A set of isometric axes and a partially completed drawing are shown on the right. The elevation and incomplete plan of the holder have been positioned relative to the axes as shown.

(a) Complete the plan of the holder.

(b) Compete the axonometric projection.

Note: *The projections of the hole for the candle are not required.*

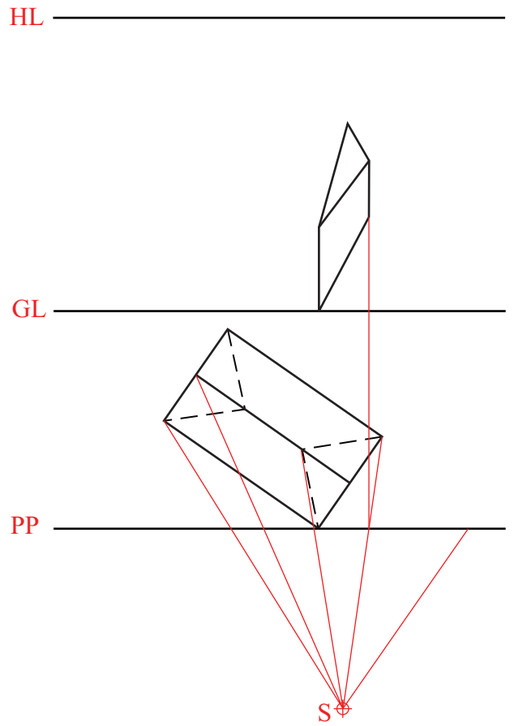




A-4. The 3D graphic below shows a fast food carrier box.

The plan and partially completed perspective drawing of the fast food carrier box are shown on the right.

Complete the perspective drawing.



This examination paper must be returned at the end of the Examination – You must include your Name, School Name and Teacher Name on the front cover

Pre-Leaving Certificate Examination, 2012

Design & Communication Graphics
Ordinary Level
Sections B and C (180 marks)

Time: 3 Hours

This examination is divided into three sections:

SECTION A	(Core - Short Questions)
SECTION B	(Core - Long Questions)
SECTION C	(Applied Graphics - Long Questions)

SECTION A
- Four questions are presented.
- Answer **any three** on the accompanying A3 examination paper.
- All questions in Section A carry **20 marks** each.

SECTION B
- Three questions are presented.
- Answer **any two** on drawing paper.
- All questions in Section B carry **45 marks** each.

SECTION C
- Five questions are presented.
- Answer **any two** (i.e. the options you have studied) on drawing paper.
- All questions in Section C carry **45 marks** each.

General Instructions:
- *Construction lines must be shown on all solutions.*
- *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 name, school name and teacher name in the box provided on Section A and on all other sheets used.*

SECTION B - Core

Answer **Any Two** questions from this section on drawing paper

B-1. The 3D graphic on the right shows a coal bunker.

Fig. B-1 below shows the plan and elevation of a model of the coal bunker.

(a) Draw the given plan and elevation.

(b) Draw an auxiliary elevation of the ***coal bunker***, projected from the plan in the direction of arrow **A**.

Scale 1:1

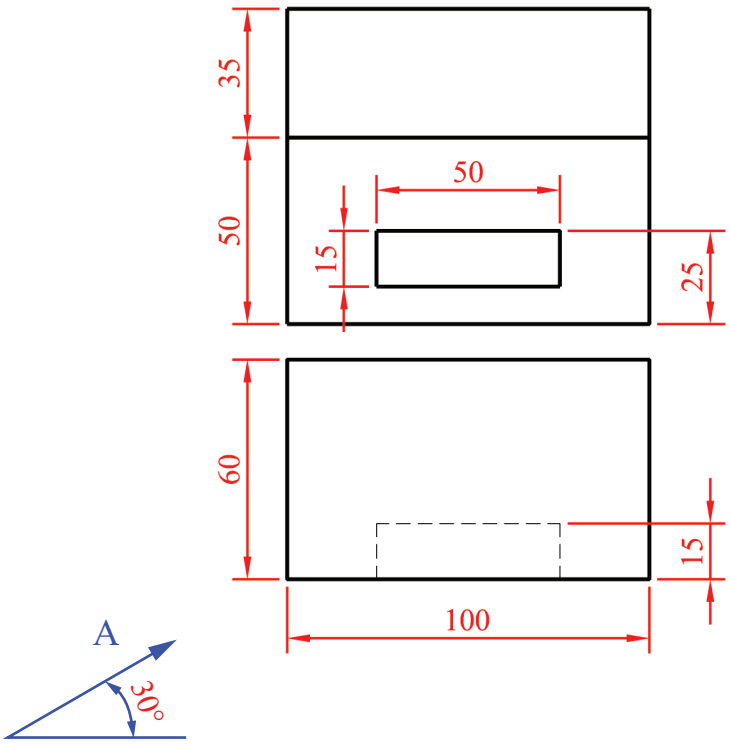


Fig. B-1

B-2. The 3D graphic on the right shows a model house with a solar panel.

Fig. B-2 shows the plan and elevation of a portion of the house including the solar panel.

Make a perspective drawing of the house given the following:

- The picture plane passes through corner **A**
- The spectator point is 360mm from corner **A**
- The horizon line is 300mm above the ground line.

Scale 1:4

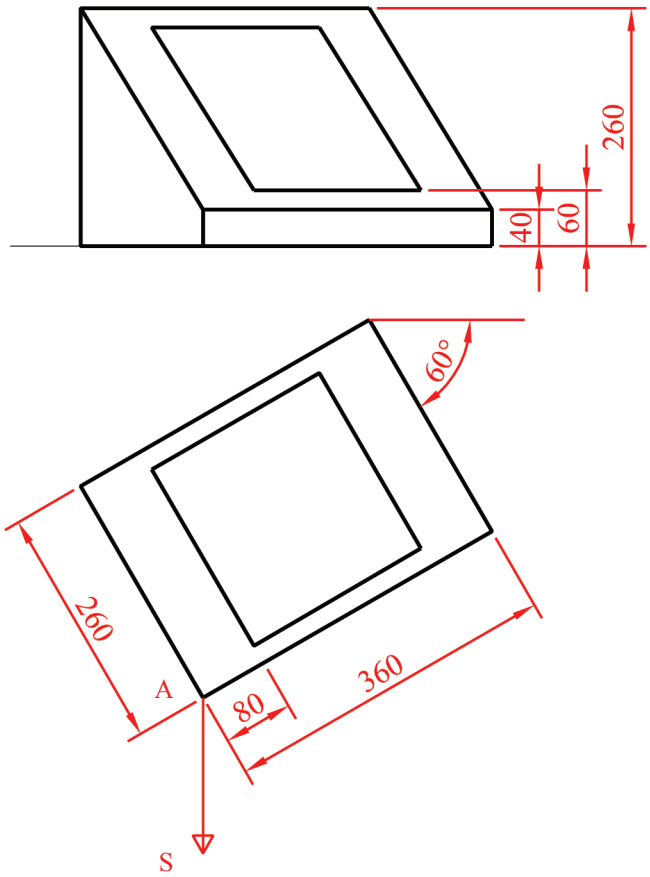


Fig. B-2

B-3. The 3D graphic on the right shows an Easter egg box. It is hexagonal in shape with a hole cut through it as shown.

Fig. B-3 shows the elevation and plan of the box.

(a) Draw the given plan and elevation of the box.

(b) Project an end elevation of the box which will include the outline of the hole.

Scale 1:1

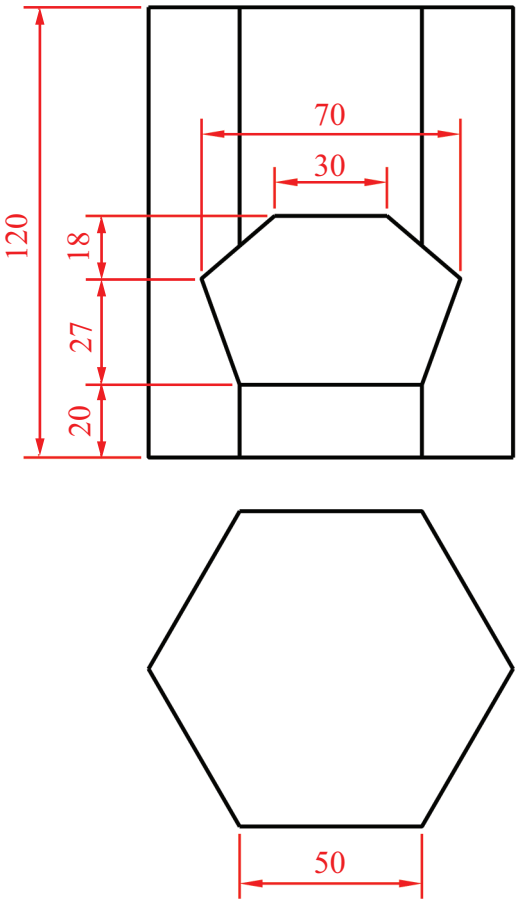


Fig. B-3

SECTION C - Applied Graphics

Answer **Any Two** questions (i.e. the options you have studied)
from this section on drawing paper

Geologic Geometry

C-1. The accompanying map, located on the back page of Section A, shows ground contours at five metre vertical intervals.

(a) On the drawing 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 50m.

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

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

(c) **E**, **F** and **G** are outcrop points on the surface of the stratum of ore.
Determine the strike of the stratum.

Scale 1:1000

C-2. The photograph on the right shows a building. Its roof is in the form of a hyperbolic paraboloid.

Fig. C-2 below shows the plan and elevation of the roof.

(a) Draw the given plan and elevation of the hyperbolic paraboloid surface.

(b) Project an end view of the hyperbolic paraboloid surface.

Scale 1:100

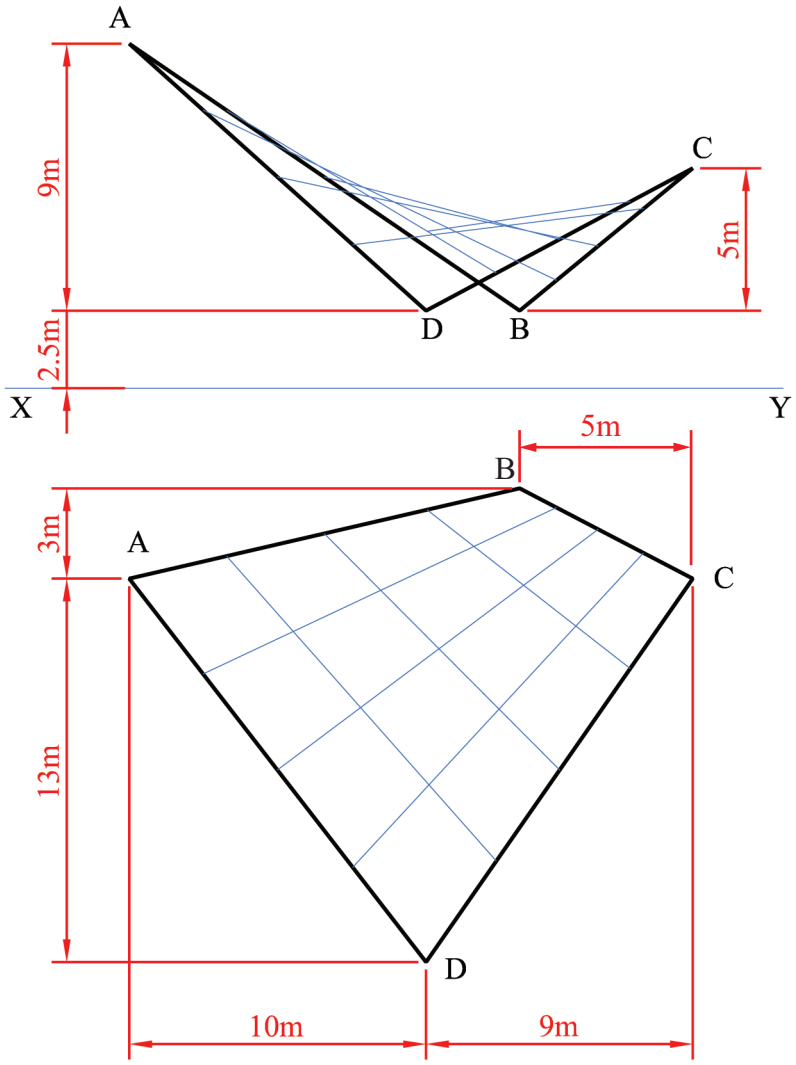


Fig. C-2

C-3. The 3D graphic on the right shows a litter bin.

The plan and elevation of the litter bin are shown in Fig. C-3.

(a) Draw the given plan and elevation of the litter bin.

(b) Draw a one-piece surface development of the litter bin.

(c) Draw and indicate in millimetres, the minimum size of a rectangular sheet which would contain the development.

Scale 1:4

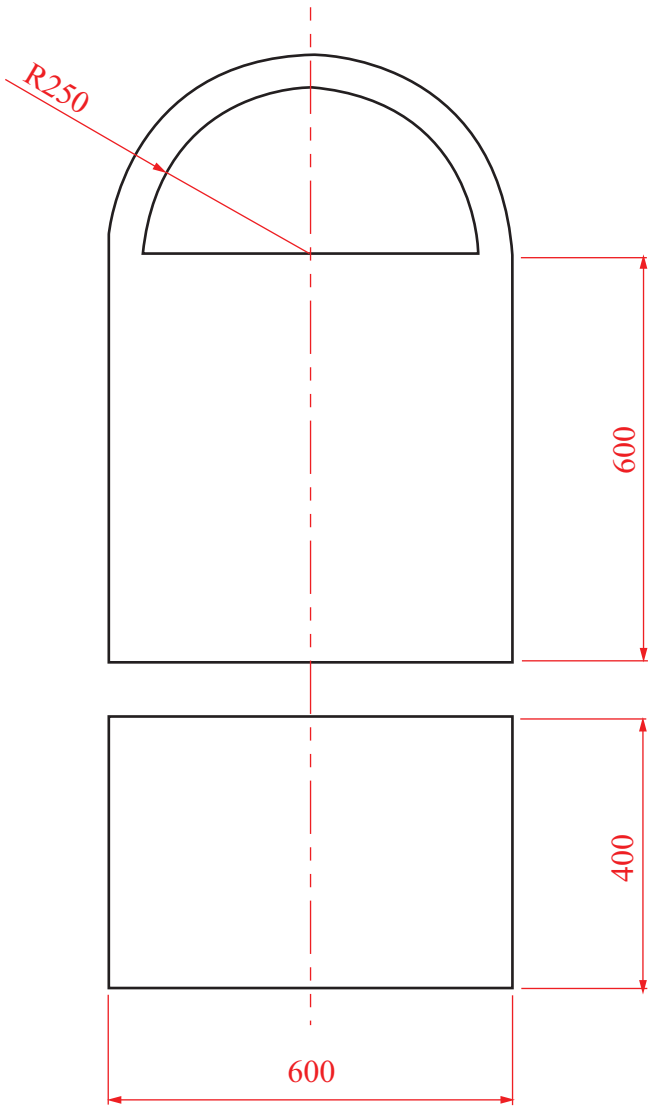


Fig. C-3

Dynamic Mechanisms

C-4. (a) The graphic on the right shows a pull-along train. A rotating cam causes the chimney to move up and down as the train rolls along.

The cam imparts the following motion to the follower:

- 0° to 120° SHM rise of 45mm
- 120° to 210° Dwell
- 210° to 360° UV fall of 45mm

Draw the displacement diagram.

Note: *It is not necessary to draw the outline of the cam.*

(b) The graphic below shows a curved building. The plan and elevation of the lower portion of the building are shown in Fig. C-4(b).

A spiral staircase is to be installed on the outside curved surface of the building. It is proposed to follow a helical path to maintain gradient, to travel from top to bottom in two revolutions and to pass through the access point **A**.

Show the projections of the helix.

Scale 1:20

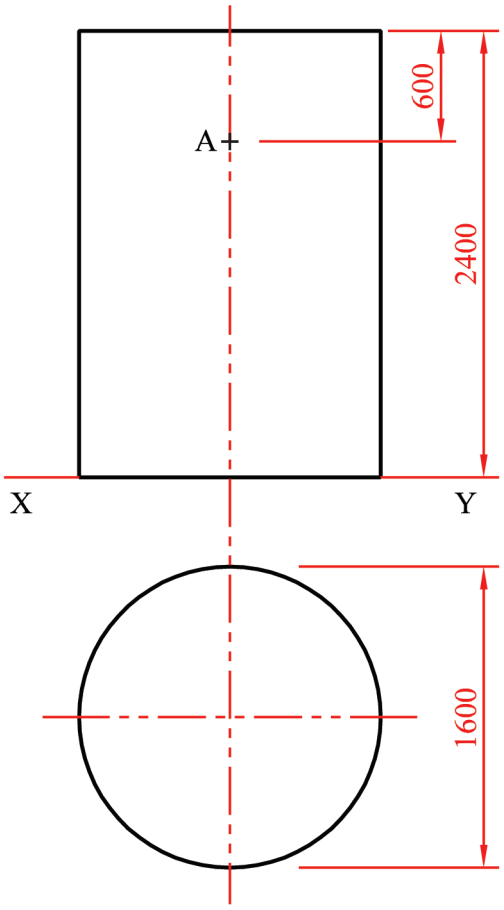
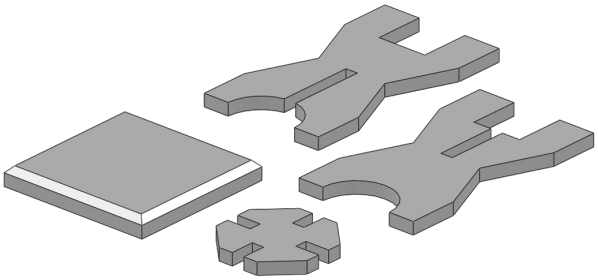


Fig. C-4(b)

Assemblies

C-5. The 3D graphic on the right shows the individual parts which are used to form a concrete Garden Table.

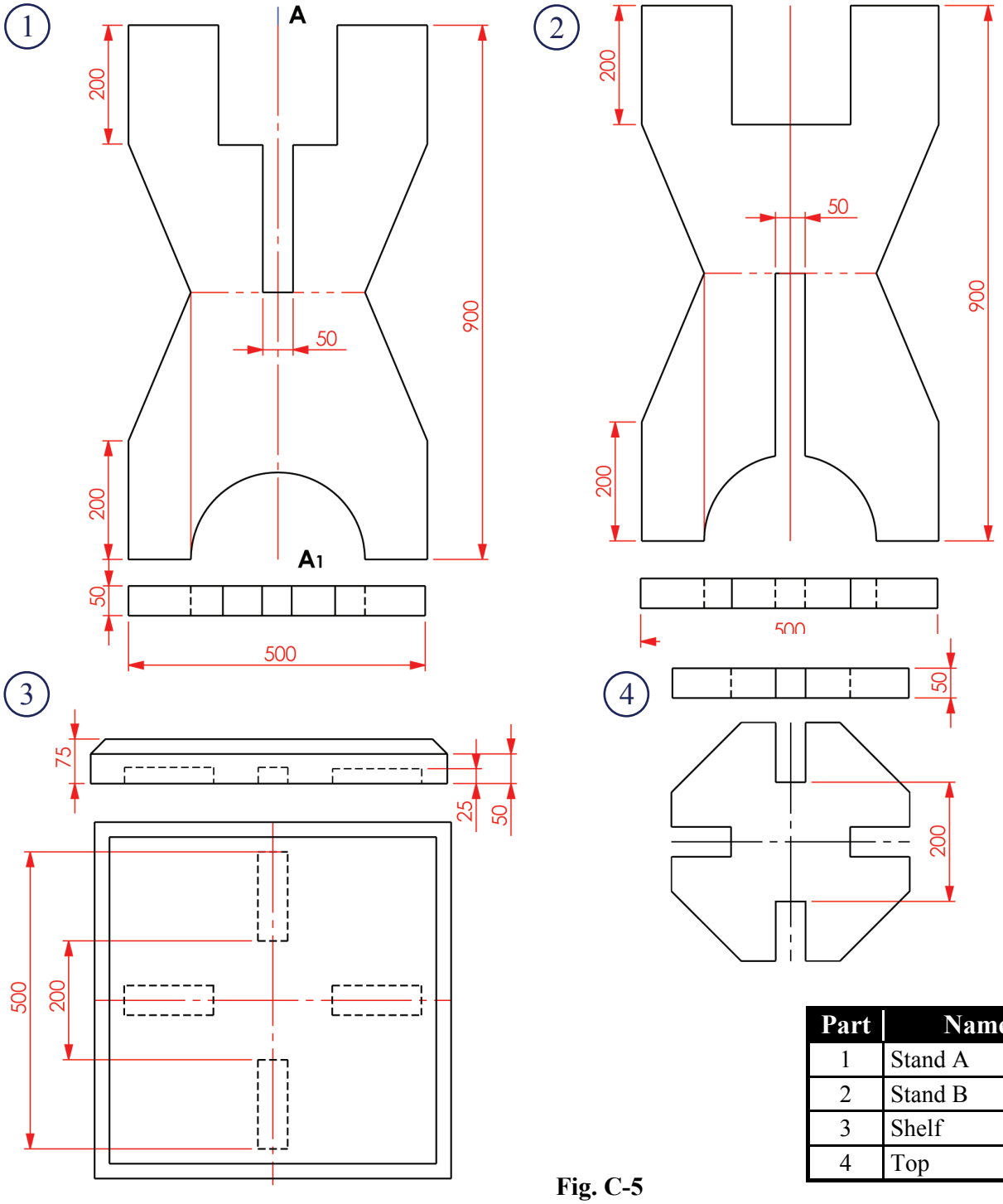


Details of the Garden Table are given in Fig. C-5 with the parts list tabulated below.

The outline of the shelf is a regular octagon.

Draw the elevation, plan and sectional elevation A-A_1 of the Garden Table.

Scale 1:10



Part	Name	Qty.
1	Stand A	1
2	Stand B	1
3	Shelf	1
4	Top	1

Fig. C-5

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