DEPARTMENT FOR CURRICULUM,
LIFELONG LEARNING AND EMPLOYABILITY
Directorate for Learning and Assessment Programmes
Educational Assessment Unit

Annual Examinations for Secondary Schools 2019

| 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
Marks allotted	14	16	14	18	18	20	100
Marks awarded							

Question 1: Polygons.

Draw the table clock shown in Fig. 1 by:
1. constructing an **octagon** inside square **ABCD**;
2. drawing three circles R27, R30 & R40 using centre **O**;
3. constructing a **hexagon** inside circle R40;
4. drawing the two rectangles attached to the top and bottom of the hexagon;
5. drawing the numbers on the clock face and the hands as shown.

(14 marks)

Fig. 1
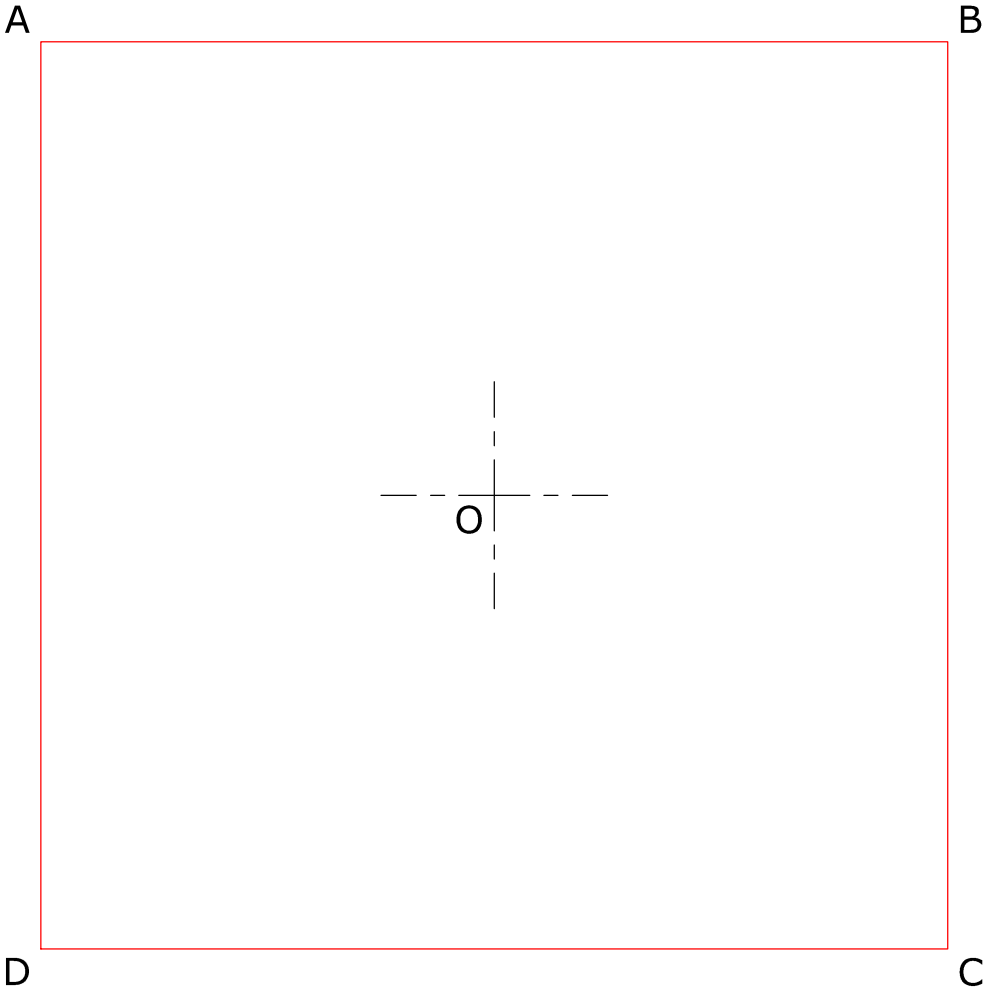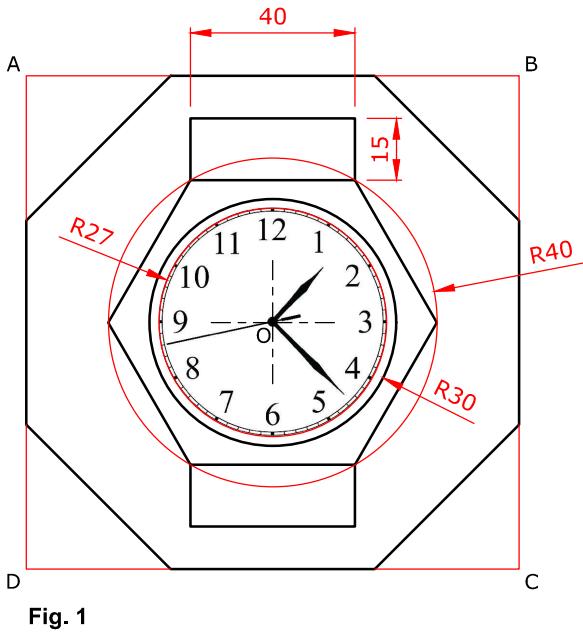
Question 2: Division of a line, parts of the circle and construction of angles.

The design of a traditional Maltese door is shown in Fig. 2.
Complete the door by:

1. dividing line **A-B** into 5 equal parts;

2. dividing line **C-B** into the ratio of 1:5:1:3:1 starting from point **C** and finishing off the door panels;

3. constructing angles 30°, 45° and 75° at point **O** using ruler and compasses. Mirror these angles;

4. labeling the two parts of the circle shown.

(16 marks)

Fig. 2
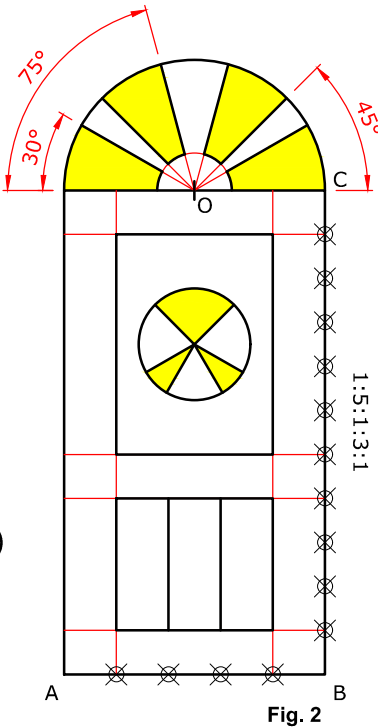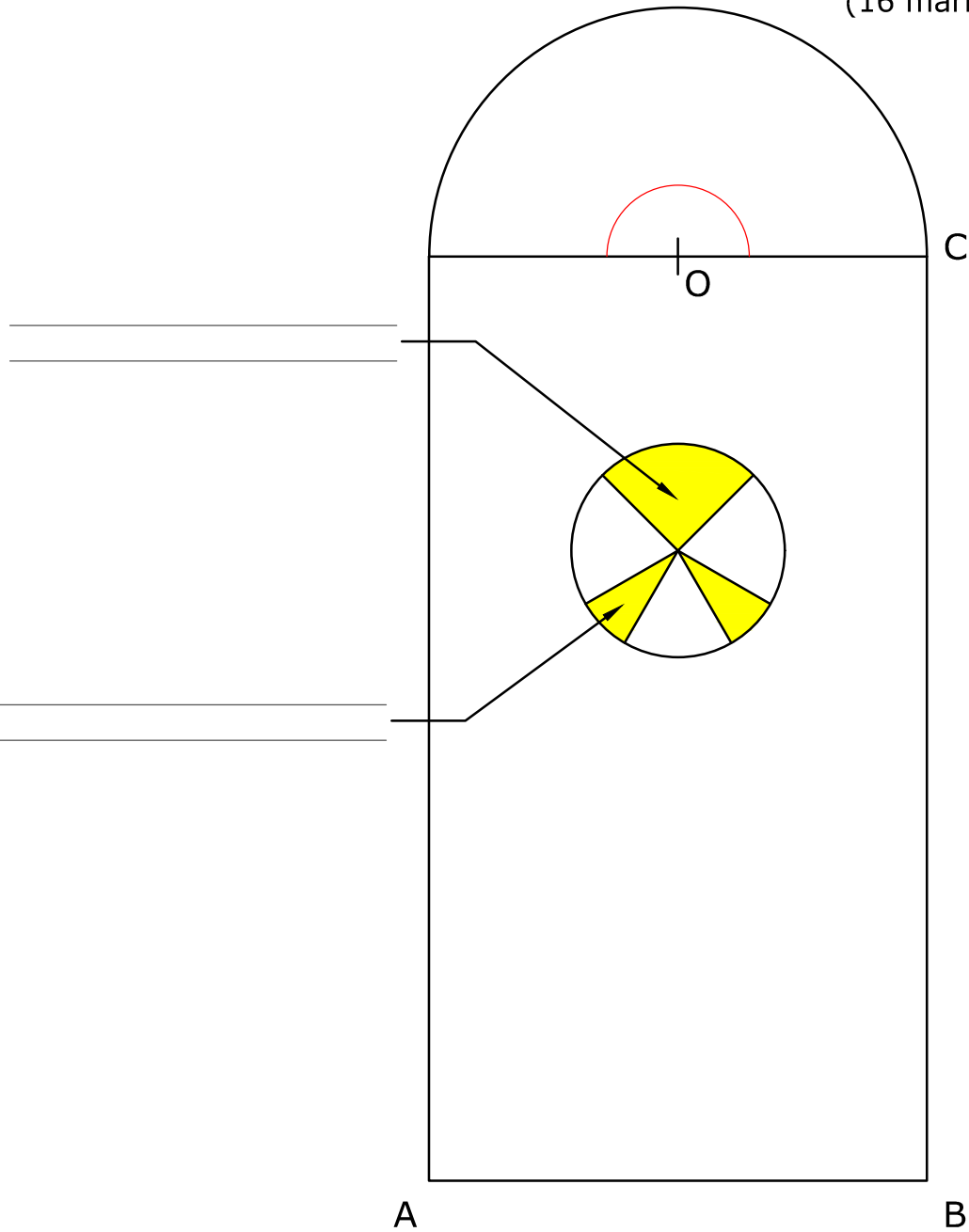
Question 3: Triangles and quadrilaterals.

George designed a royal crown made up of a rectangle (A), a trapezium (B), two isosceles triangles (C), an equilateral triangle (D) and three rhombuses (E).

Fig. 3 and shows an exploded view and Fig. 4 shows an assembly of this crown.

Construct the **assembled** crown according to the dimensions given.

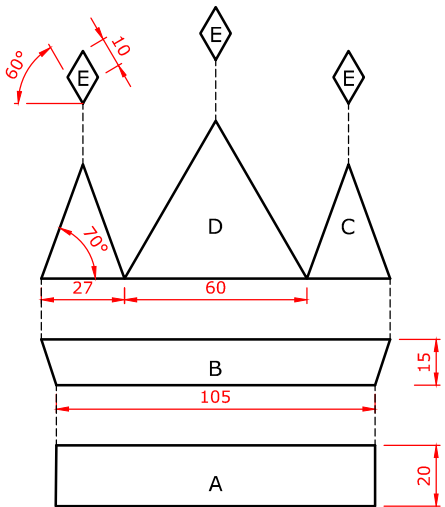The starting point for rectangle (A) is given.
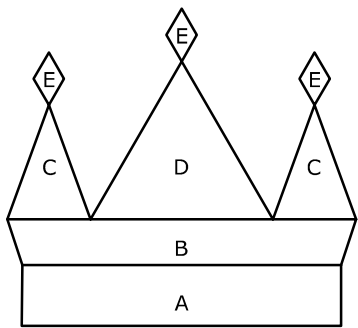
(14 marks)

Fig. 3

Fig. 4

A

Question 4: Circles in contact.

Rudolph has decided to grow a moustache as shown in Fig. 5. Using your compasses and the given dimensions, draw the design on the centre lines given by:

1. drawing arc R28 from centre W;
2. drawing arc R42 from centre O;
3. drawing arc R42 touching the arc with centre A and the arc with centre O;
4. drawing arc R110 from centre K;
5. drawing arc R30 touching the arc with centre B and the arc with centre K;
6. marking at least 2 points of tangency by short dashes.

(18 marks)

Fig. 5

K

W

O

A

B
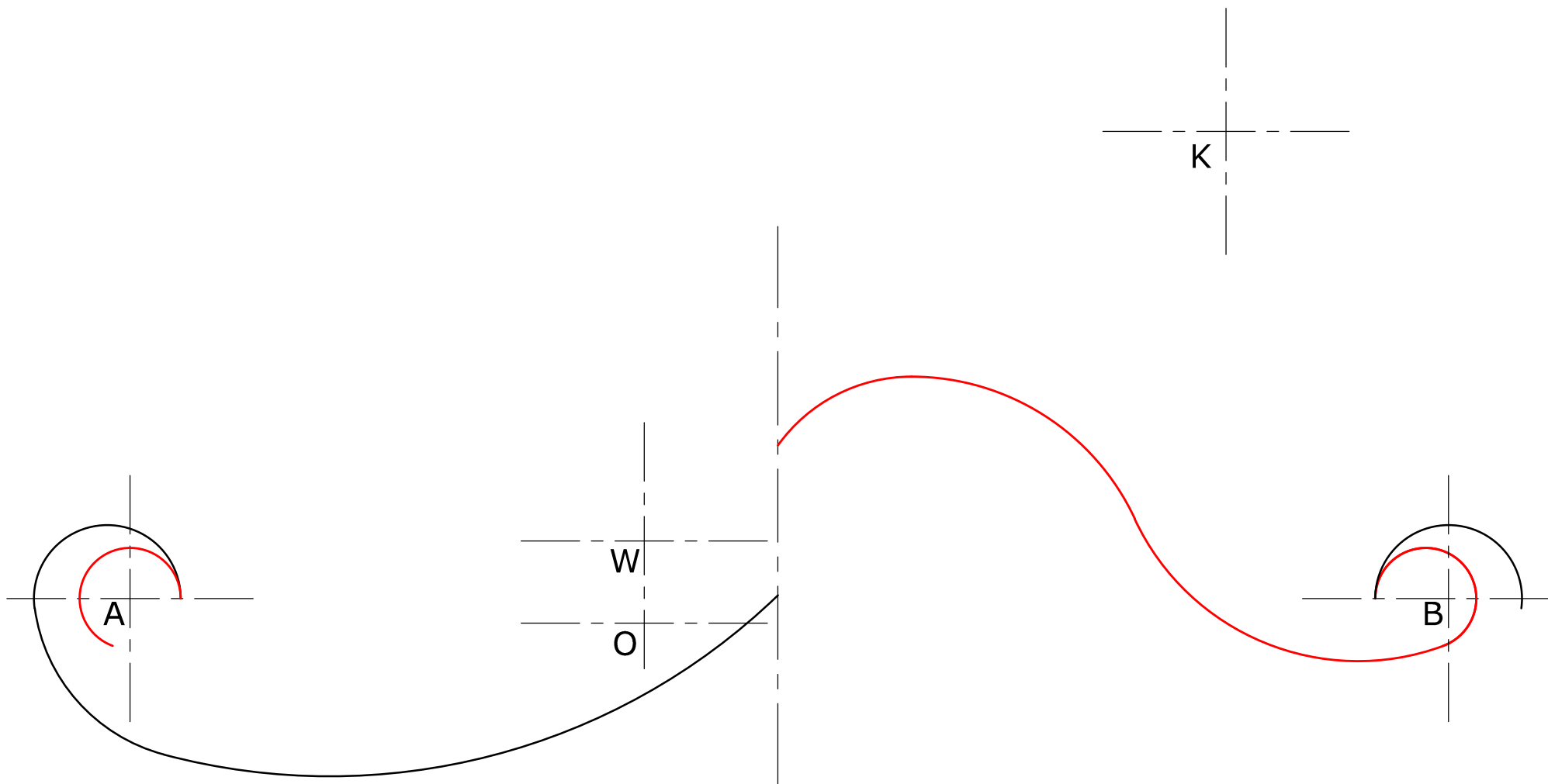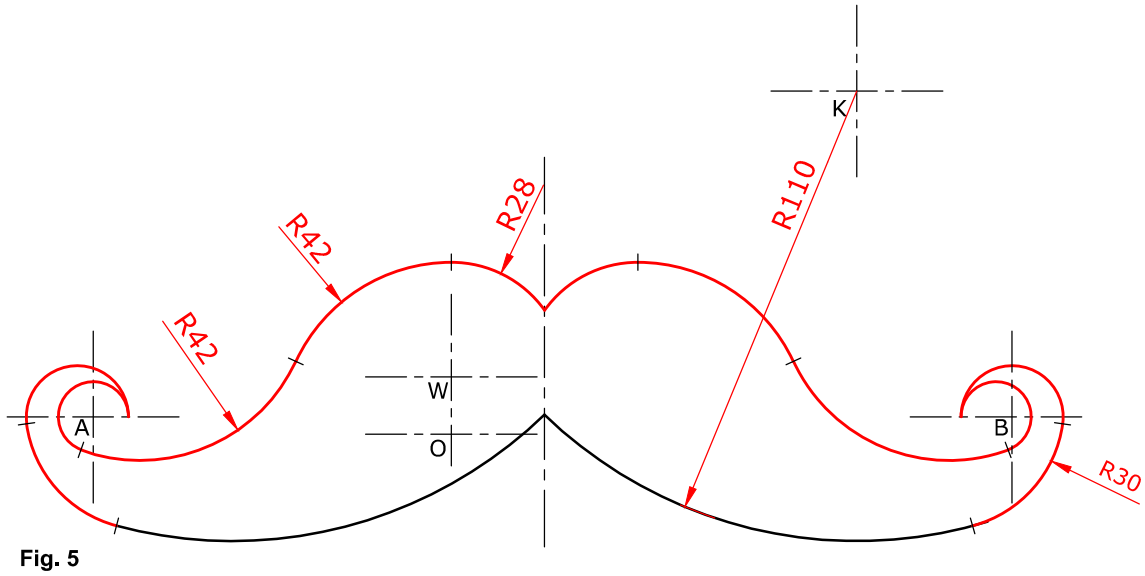
Question 5: Development of truncated cylinder.

A sticker on a cylindrical container is shown in Fig. 6. The front elevation and plan in first angle projection have been given.

1. Draw the full **development** of the sticker starting from cut line **X-X**.
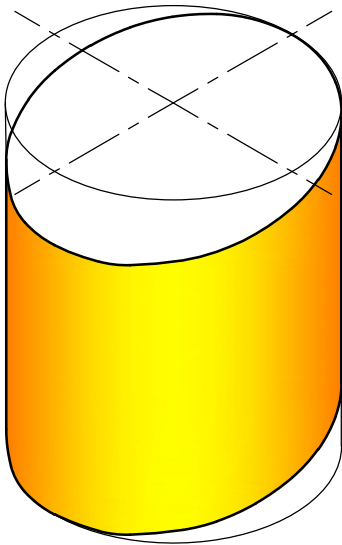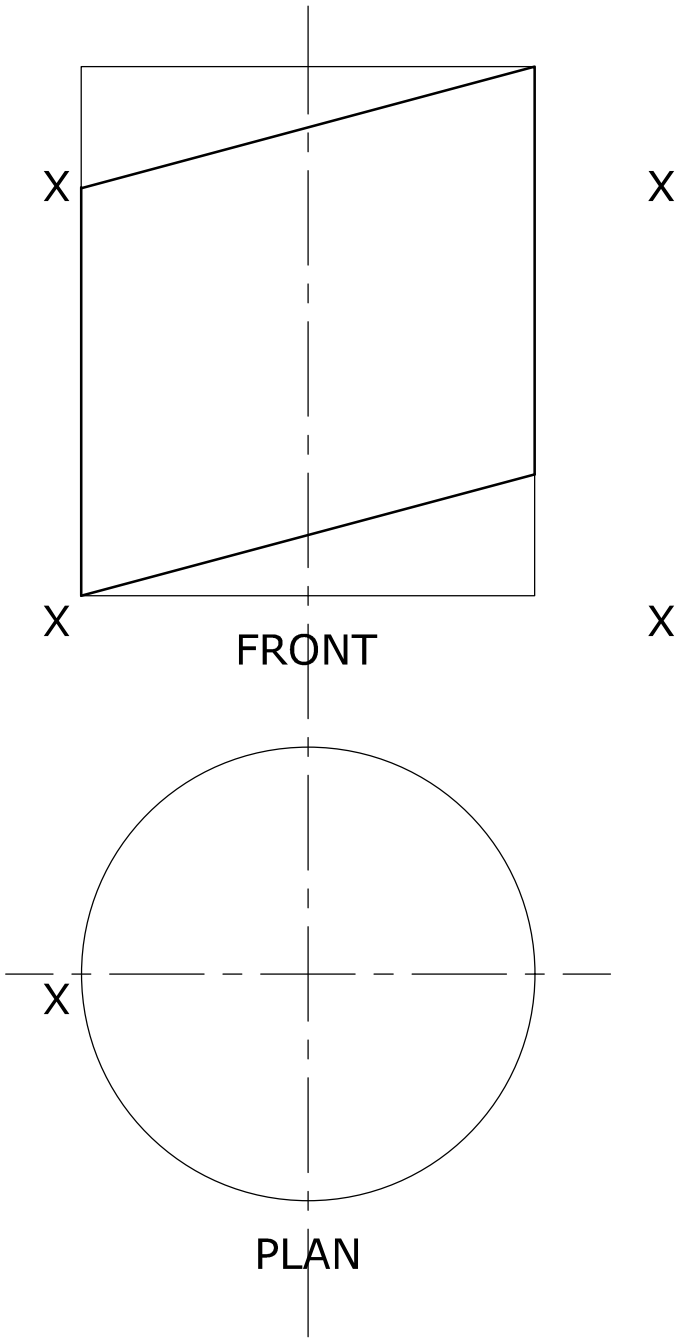2. Draw the symbol for first angle orthographic projection.

(18 marks)

Fig. 6

X   X

X   X
    FRONT

DEVELOPMENT

PLAN

SYMBOL

Question 6: Isometric projection.

The front elevation, end elevation and plan of a Sports Turbo (ST) car racing logo are shown below. An oblique view of the logo is shown in Fig. 7.

On the given starting lines, construct an **ISOMETRIC** projection of the logo by taking the dimensions from the orthographic projection and placing point X as the lowest corner.

(20 marks)

X   Fig. 7

X   FRONT   END

X

PLAN

X