

AN ROINN OIDEACHAIS  
INTERMEDIATE CERTIFICATE EXAMINATION, 1977

M.115

MECHANICAL DRAWING

WEDNESDAY, 22 JUNE - MORNING, 9.30 to 12.30

400 marks

INSTRUCTIONS

- (a) Five questions to be answered; one of these must be question No. 1, Section A. Two must be selected from Section B and two must be selected from Section C.
- (b) All questions carry equal marks. A maximum of 12 marks will be awarded for draughtsmanship in respect of each question and a maximum of 20 marks will be awarded for neatness, arrangement and presentation of answer sheets.
- (c) The number of the question must be distinctly marked by the side of each question.
- (d) Work on one side of the paper only.
- (e) Examination number must be distinctly marked on each sheet of paper used.
- (f) All construction lines must be clearly shown.
- (g) All measurements are in millimetres.

SECTION A

(This question must be attempted)

1. A shaped solid is shown in fig. 1. Make a full-size orthographic projection of the solid showing:-
  - (a) an elevation looking in the direction of arrow A,
  - (b) an end-view looking in the direction of arrow B,
  - (c) a plan projected from (a).

SECTION B

(Two questions to be attempted from this section)

2. (a) The elevation, plan and end view of a solid are given in fig. 2. Draw a full-size isometric view of this solid.  

OR

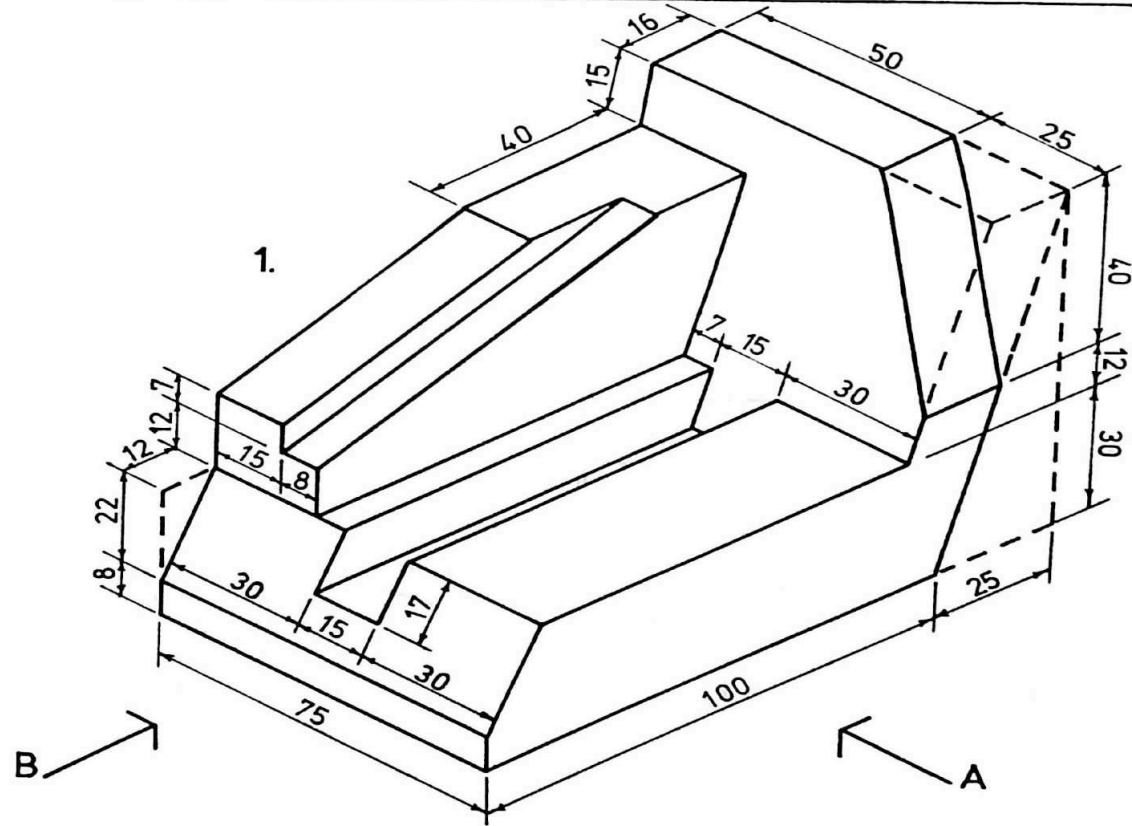
(b) Using the isometric grid paper provided make a neat well-proportioned FREEHAND sketch of the solid shown in fig. 2. Insert all necessary dimensions on the drawing.
3. The elevation and plan of a machine block are shown in fig. 3. Draw a new plan and a new elevation of this block when the sloping surface ABCD rests on the Horizontal Plane and the axis is parallel to the Vertical Plane.
4. Fig. 4 shows the elevation and incomplete plan of an equilateral triangular pyramid cut by a plane inclined at  $30^\circ$ . Draw, full-size, the elevation as given and complete the plan of the cut pyramid. Project an end view of the cut pyramid.
5. The regular hexagonal container shown in fig. 5 has an open top. Draw a full-size development of this container.

SECTION B

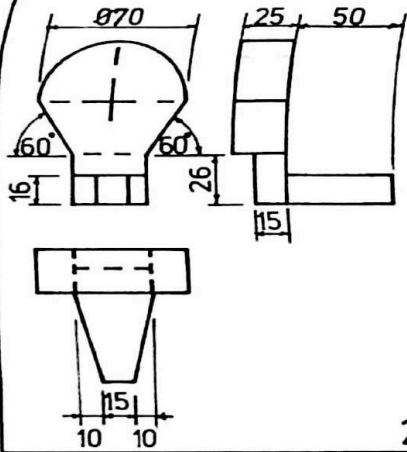
(Two questions to be attempted from this section)

6. The triangle ABC shown in fig. 6 has a perimeter of 200 mm. Construct this triangle, full-size, and draw a circle to pass through points A, B and C. Construct another triangle similar to triangle ABC which shall be inscribed in a circle of radius 55 mm.
7. (a) A section of timber moulding is shown in fig. 7. Draw, full-size, this section showing clearly all construction lines.  
(b) Construct another section which shall be similar to the given section and with a base of 70 mm as indicated.
8. Construct a plain scale of 1 : 5 to read measurements up to 500 mm. Using this scale construct the pentagon ABCDE in accordance with the dimensions shown in fig. 8. Write down clearly the length of DE.
9. The design shown in fig. 9 contains an elliptical curve and a circular arc. The major axis of the ellipse is 110 mm long. Draw this design full-size showing clearly the method of finding the length of the minor axis and the centre for the circular arc.

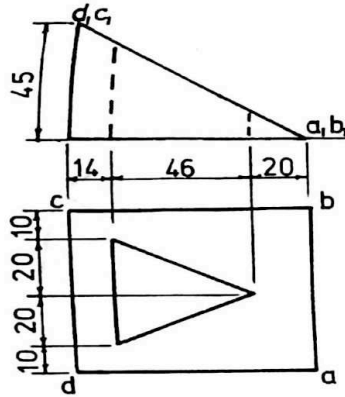
ROINN A — SECTION A



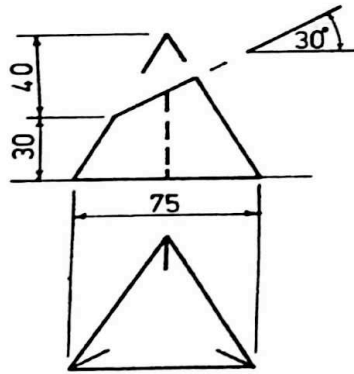
ROINN B — SECTION B



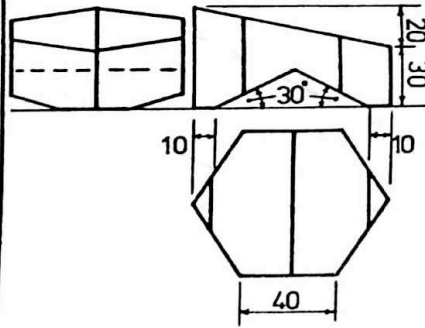
2.



3.

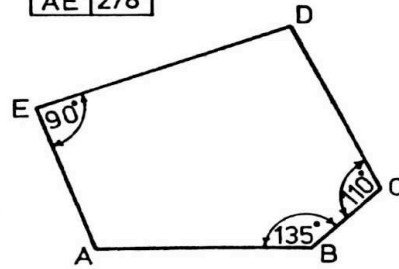


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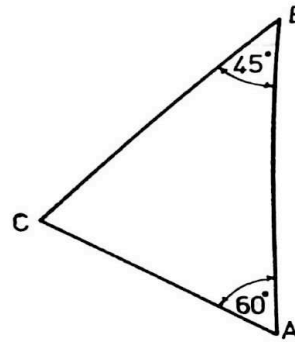
5.

AB	320
BC	155
AD	490
AE	278

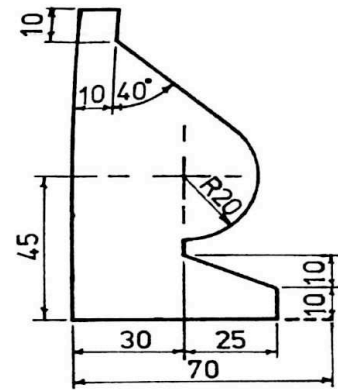


8.

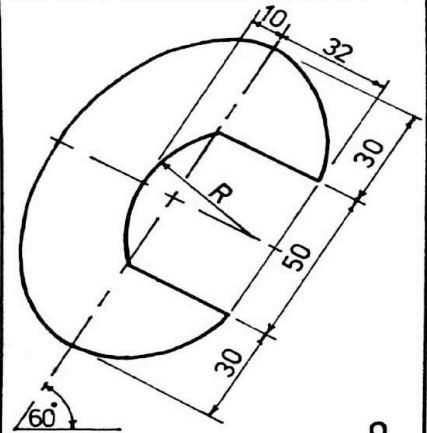
ROINN C — SECTION C



6.



7.



9.