22578

AN ROINN OIDEACHAIS

M.115

INTERMEDIATE CERTIFICATE EXAMINATION, 1985

MECHANICAL DRAWING

WEDNESDAY, 19 JUNE - AFTERNOON, 2.00 to 5.00

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.
(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 drawing of this solid in orthographic projection showing:-

(a) An elevation looking in the direction of arrow A.
(b) An end elevation looking in the direction of arrow B.
(c) A plan projected from (a) above.

FIRST or THIRD angle projection may be used.

SECTION B

(Two questions to be attempted from this section)

2. Fig. 2 shows the plan of a regular pentagonal prism which is cut by a plane. The cross-section of the prism is also given.
Reproduce the given plan full-size and project the elevation of the cut prism.

3. The elevation and end view of a solid are shown in fig. 3.

(a) Reproduce these views full size and draw the plan in the position indicated on the given drawings.

(b) From the plan project a new elevation looking in the direction of the arrow.

4. Fig. 4 shows the elevation and plan of a solid.

(a) Draw a full-size isometric view of this solid.

or

(b) Using the isometric grid-paper provided draw a neat well-proportioned FREEHAND sketch of this solid. All measurements should be inserted on the freehand drawing.

5. Fig. 5 shows the plan of a cylinder A and sphere B resting on the Horizontal Plane. The height of the cylinder is 60 mm.

(a) Draw the given plan and project the elevation of these two solids.

(b) A cone, base diameter 60 mm and altitude 70 mm, stands on the Horizontal Plane in position C so that it is in contact with both cylinder and sphere. Draw this cone in the plan and elevation.

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SECTION C

(Two questions to be attempted from this section)

6. The triangle ABC shown in fig. 6 has a perimeter of 280 mm and its sides are in the ratio of 4:5:6.

   (a) Draw this triangle by using a geometric construction and inscribe the square as shown.

   (b) Construct a square which shall have an area equal to the sum of the three shaded triangles.

7. In the design shown in fig. 7 the part on the right-hand side of line A-A is similar to the dimensioned part on the left-hand side.
   Draw this design to the given dimensions.

8. (a) Draw the shape shown in fig. 8 to the given dimensions.
   This shape is to be rotated in a clock-wise direction about centre O through an an angle of 120°. Draw the shape in its new position.

   (b) On a line 100 mm long construct a diagonal scale of 1:50 which will read up to 5m in metres and hundredths of metres. Show measurements of 2580 mm and 3240 mm on the scale.

9. (a) The design shown in fig. 9 contains an elliptical curve and two tangents drawn to the curve at P and Q. The major and minor axes of the ellipse are 110 mm and 70 mm, respectively.
   Draw this design.

   (b) A line AB 110 mm long represents the major axis of an ellipse. A point P on the curve of the ellipse is 90 mm from A and 45 mm from B.
   Find the minor axis and the focal points of the ellipse.

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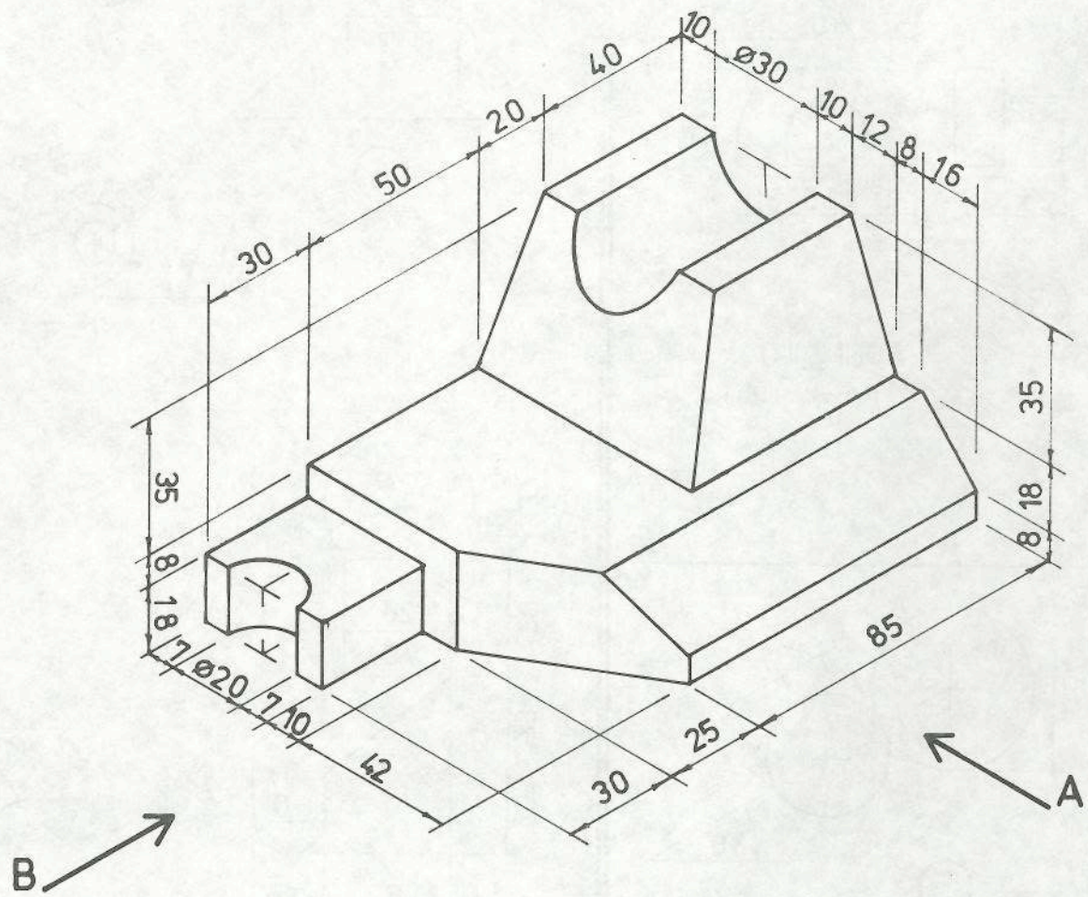
ROINN A ___ ___ SECTION A



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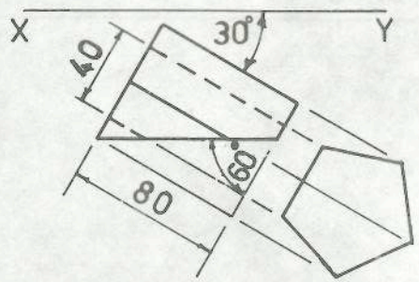
ROINN B —— SECTION B



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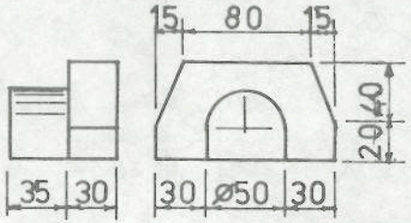

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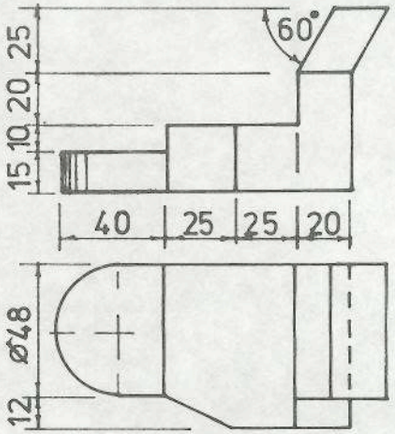

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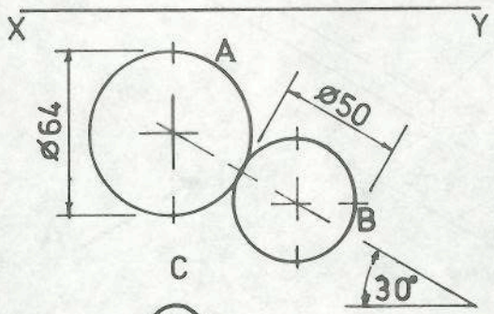

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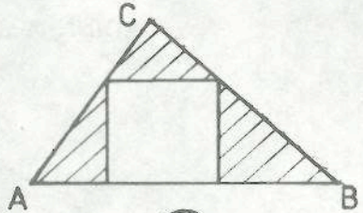
ROINN C —— SECTION C



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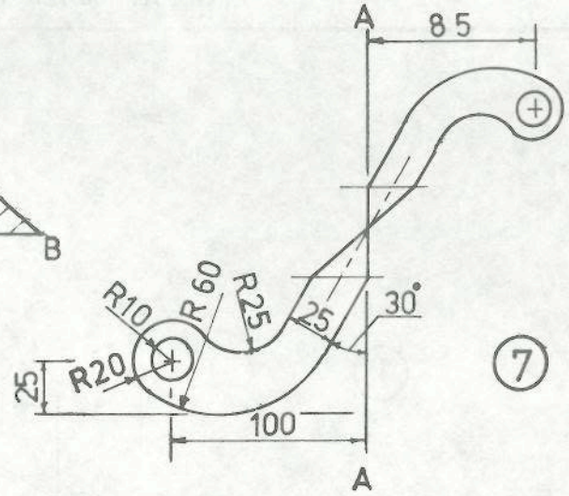

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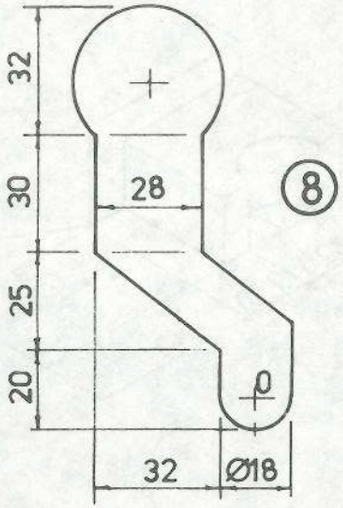

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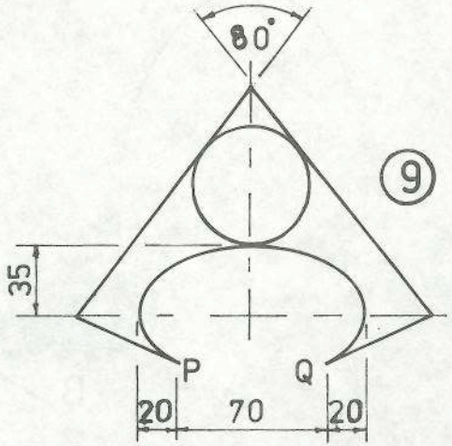

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