



Leaving Certificate Examination 2007

Technical Drawing
Paper 1 – Ordinary Level
(Plane and Solid Geometry)

(200 Marks)

Thursday 14 June
Morning, 9.30 – 12.30

Instructions

- (a) Answer **four** questions.*
- (b) All questions carry equal marks.*
- (c) Construction lines must be shown on all solutions.*
- (d) Write the number of the question distinctly on the answer paper.*
- (e) Work on one side of the paper only.*
- (f) All dimensions on the question paper are given in metres or millimetres.*
- (g) First or third angle projection may be used.*

1. An isometric view of a shaped solid is shown in Fig. 1.

- (a) Draw an elevation of the solid looking in the direction of the arrow.
- (b) Project a plan from the elevation.
- (c) Project a new elevation of the solid from the plan, which will show the true shape of the surface A.

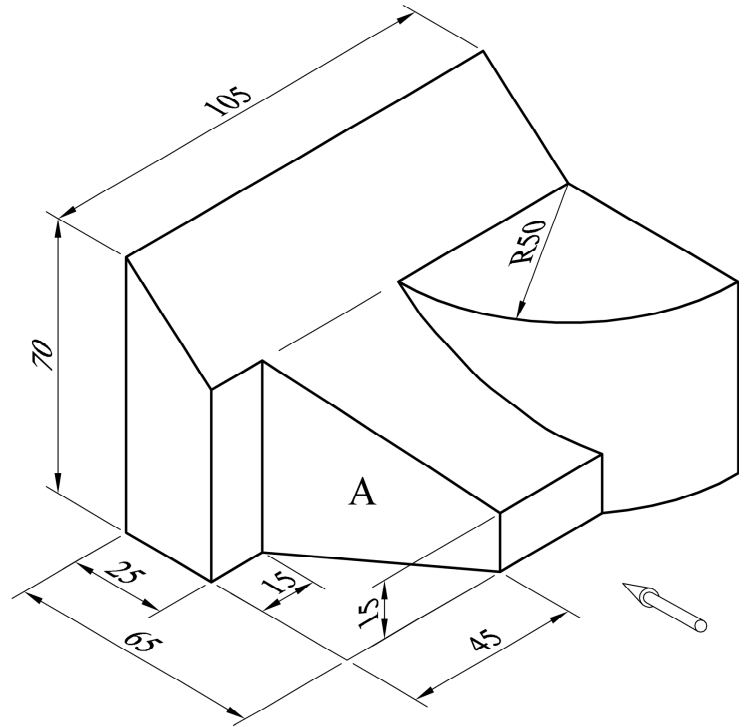


Fig. 1

2. Fig. 2 shows a quadrilateral ABCD which is divided into two triangles.

The triangle ABC has a perimeter of 342mm and the sides AB and BC are in a ratio of 3:2 respectively.

The triangle ACD is half the area of the triangle ABC.

- (a) Draw the given figure, showing clearly the constructions required to locate the points B and D.
- (b) Draw a square, which shall be equal in area to the figure ABCD.

All constructions must be clearly shown on the sheet.

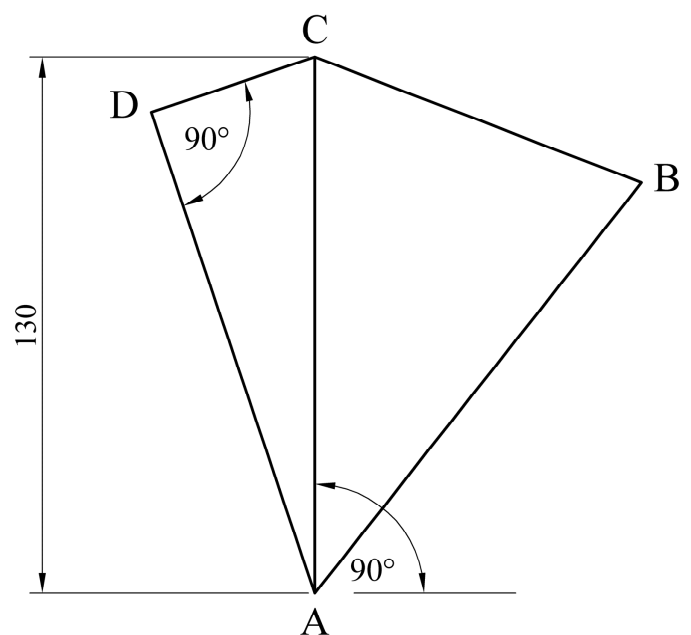


Fig. 2

3. Fig. 3 shows the elevation and plan of a sphere A and a cylinder B which are in contact with each other.

The elevation of a cylinder C, which is in contact with both solids, is also shown.

- Draw the plan and elevation of the sphere A and the cylinder B.
- Draw the plan and elevation of the cylinder C.
- Show the plan and elevation of the points of contact between the solids.

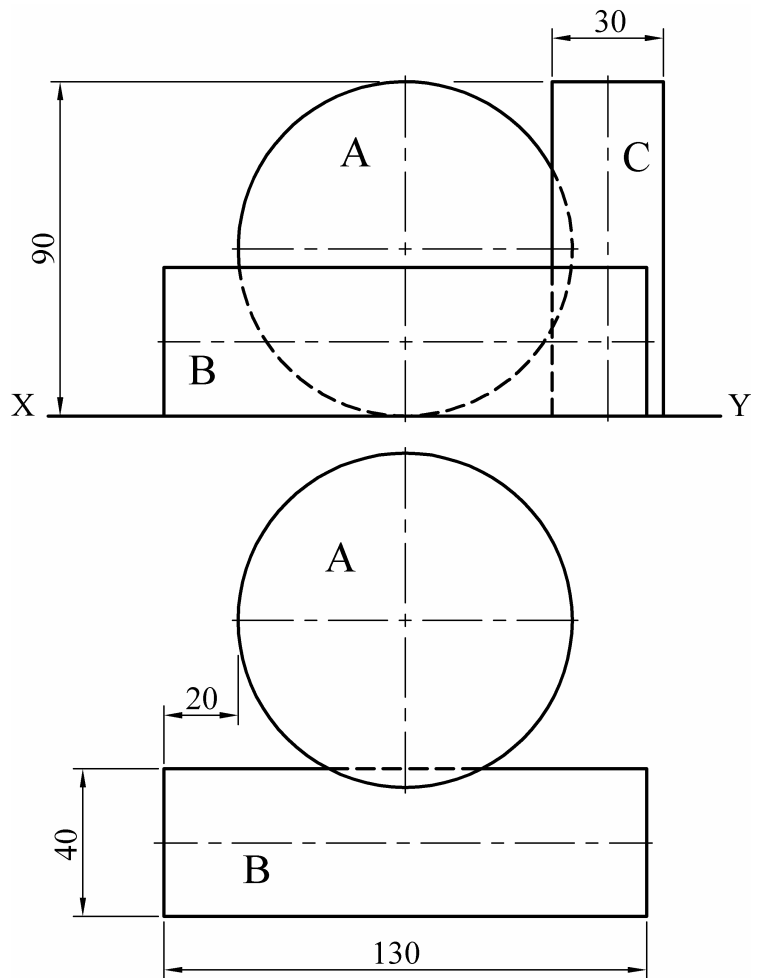


Fig. 3

4. Fig. 4 shows a circle R and a semicircle S, which are in contact with the line AB as shown.

Also shown are two points P and Q on the circumference of the circle and the semicircle respectively.

- The circle R rolls clockwise along the line AB until P reaches the line AB. Plot the locus of P for this movement.
- The semicircle S rolls anticlockwise along the line AB until Q reaches the line AB. Plot the locus of Q for this movement.

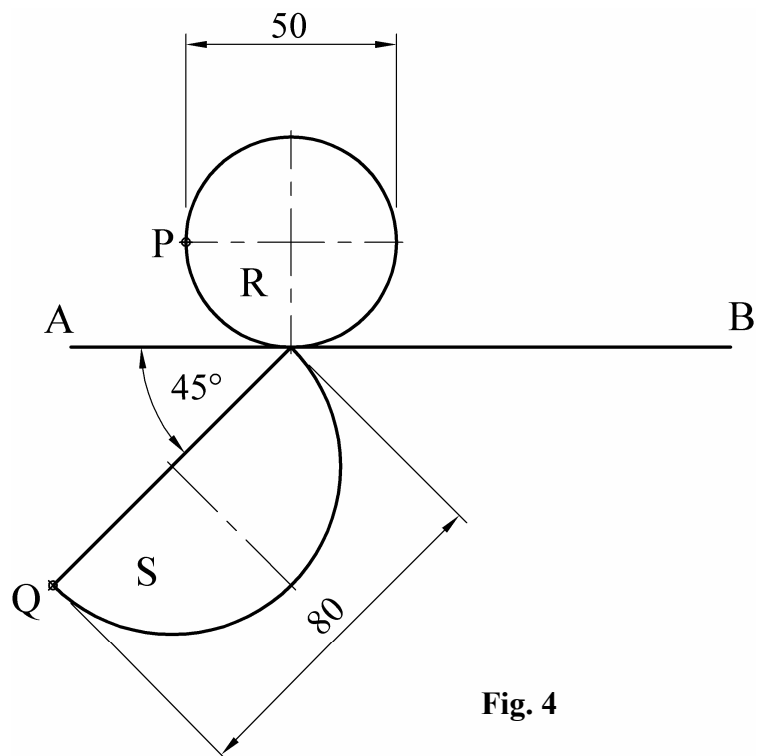


Fig. 4

5. The elevation and plan of a rectangular based solid, which is to be cut by an oblique plane VTH are shown in Fig. 5.

- (a) Draw the plan and elevation of the solid when it is cut by the oblique plane VTH.
- (b) Draw the true shape of the cut surface of the solid.

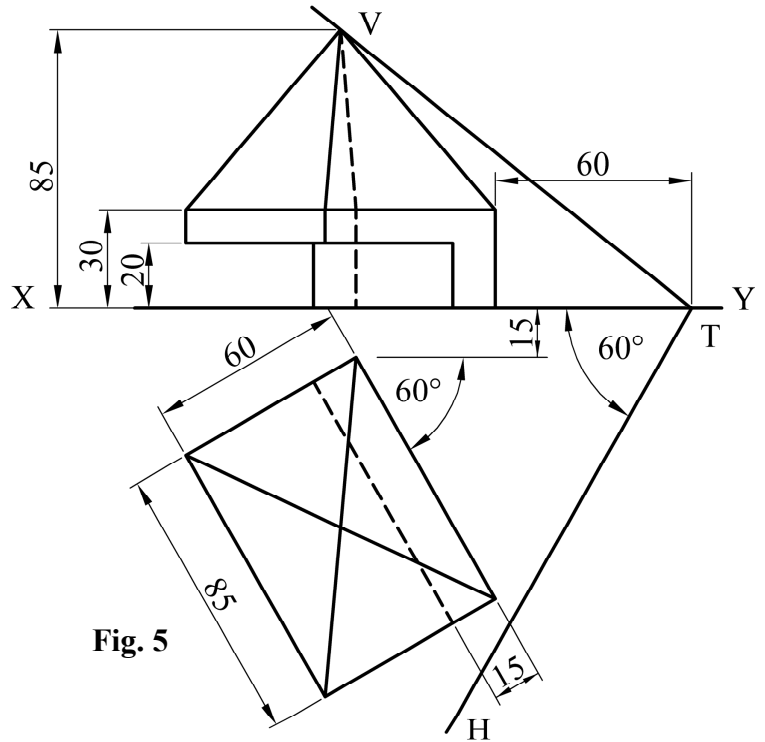


Fig. 5

6. (a) The minor axis of an ellipse is 90mm long and its focal points are 100mm apart. Locate the major axis and draw the ellipse.

Draw a tangent to the ellipse at a point 55mm from the centre of the curve.

- (b) Fig. 6 shows the axis and focus of a hyperbola. The position of a point P on the curve is also shown.

The eccentricity of the curve is $\frac{2}{1}$.

Locate the directrix and vertex of the hyperbola.

Draw a portion of the curve which passes through the given point P.

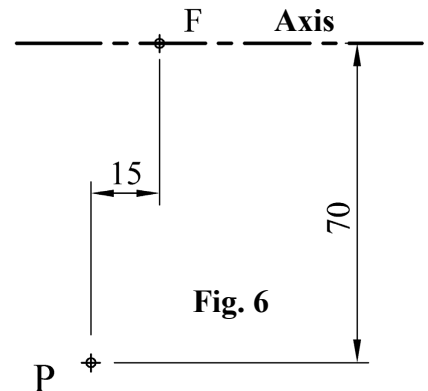


Fig. 6

7. Fig. 7 shows the plan and elevation of an equilateral triangular based prism which is truncated as shown. It is intersected by another triangular prism.

Draw the plan, elevation and end elevation of the solids showing all lines of interpenetration.

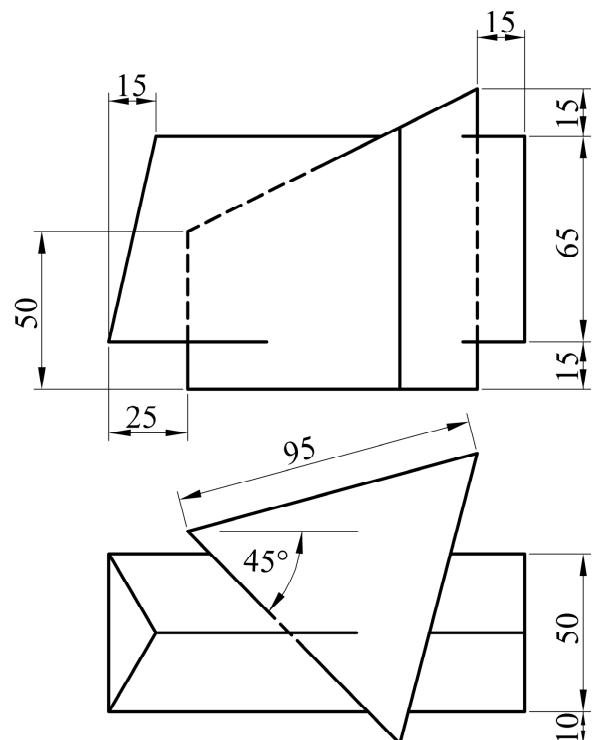


Fig. 7

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