



***Leaving Certificate Examination 2004***

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

***(200 Marks)***

***Thursday 17 June***  
***Afternoon, 2.00 – 5.00***

- (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.

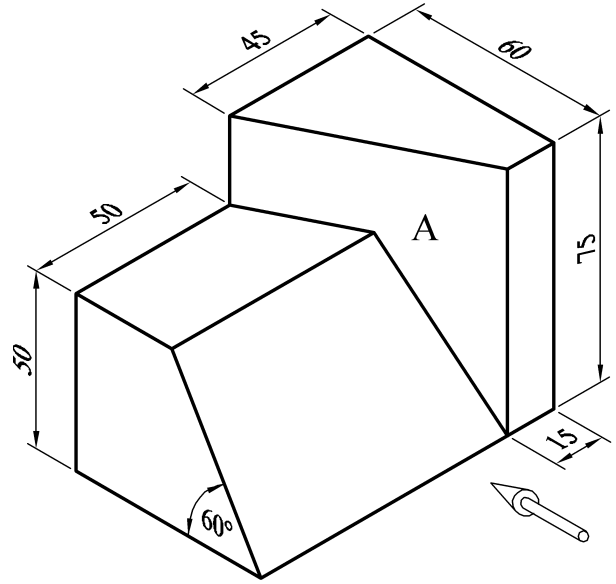


Fig. 1

2. Fig. 2 shows a quadrilateral ABCD. The sides of the triangle ABC are in a ratio of 2:3:4. The triangle ACD is twice the area of the triangle ABC.

The sides AD and CD are equal in length.

- (a) Draw the given figure, showing how the points B and D are located.
- (b) Draw a square, which shall have the same area as the quadrilateral ABCD.

*All constructions must be clearly shown on the sheet.*

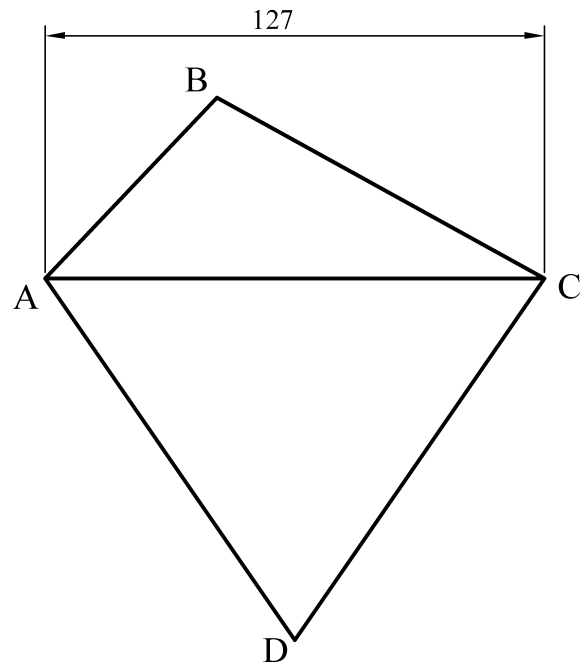


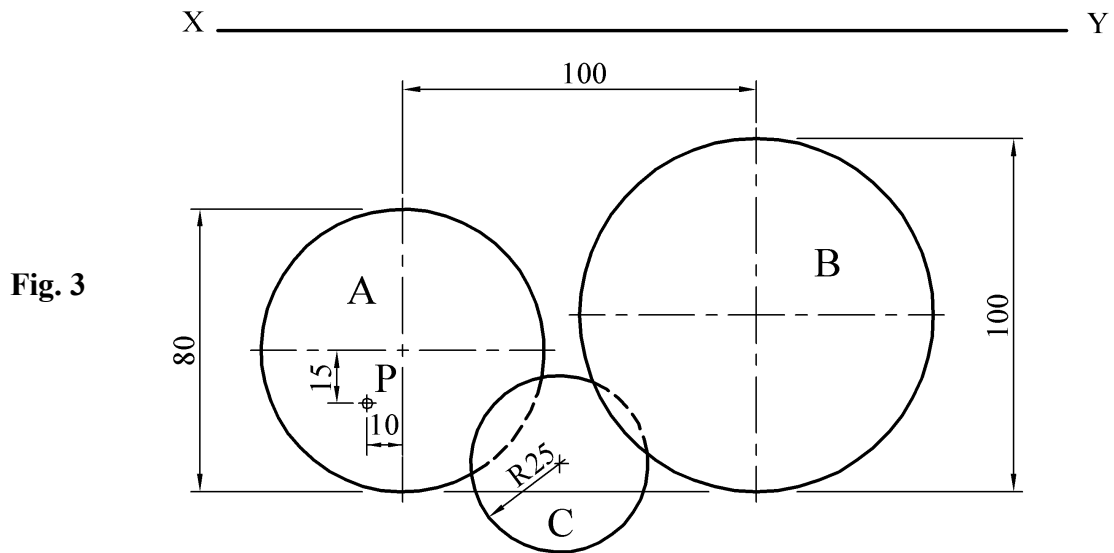
Fig. 2

3. Fig. 3 shows the plan of a cone A and a sphere B. Also shown is a sphere C, which is in contact with both solids. All three solids rest on the horizontal plane.

The cone has an altitude of 70mm.

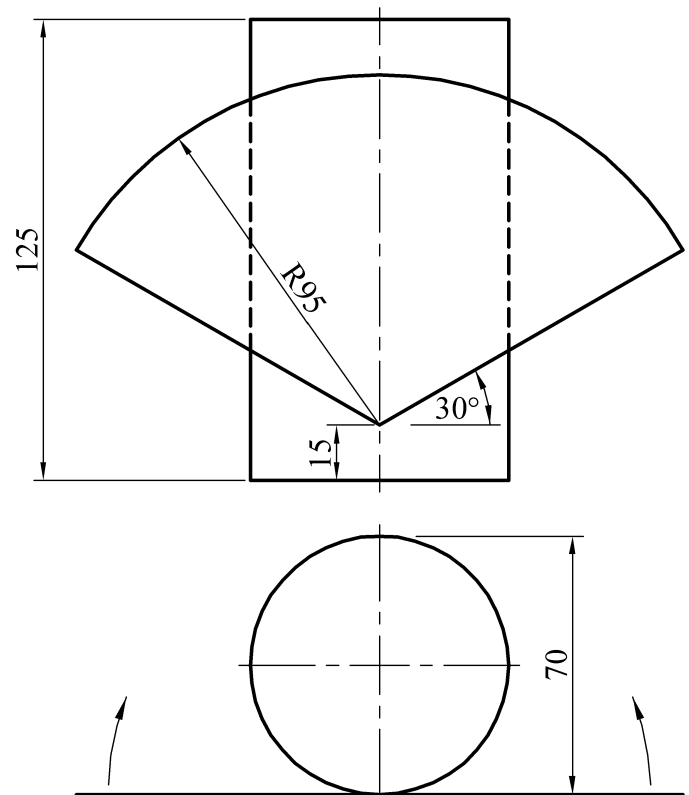
The plan of a point P on the surface of the cone is also shown.

- Draw the elevation and plan of the three solids showing clearly how the centre of sphere C is located.
- Show the position of point P in elevation.
- Draw the plan and elevation of another sphere, having a diameter of 40mm, which shall be in contact with the cone at the point P.



4. Fig. 4 shows the plan and elevation of a cylinder. A label which is to be wrapped around the cylinder is also shown in the views.

Draw the given views and complete the elevation to show the label in the wrapped position.



5. The elevation and plan of a square 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.

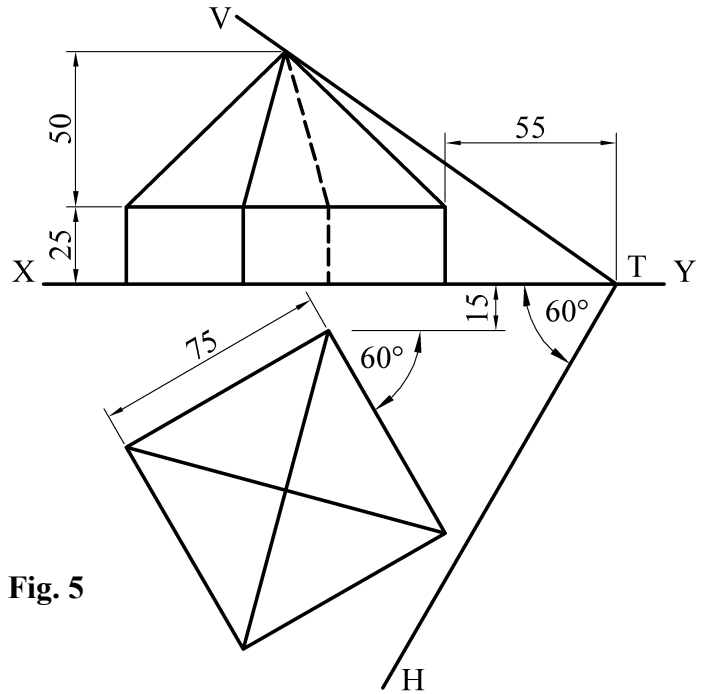


Fig. 5

6. (a) Draw an ellipse with a major axis of 140mm and a minor axis 90mm. Draw a tangent to the ellipse at a point 55mm from the centre of the curve.

- (b) Fig. 6 shows the directrix  $DD_1$ , axis and vertex  $V$  of a hyperbola. The eccentricity of the curve is  $\frac{4}{3}$ . Locate the focus of the hyperbola and draw a portion of the curve.

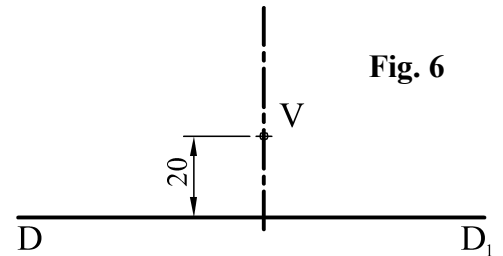


Fig. 6

7. Fig. 7 shows the elevation and plan of a solid, which is intersected by triangular prism.

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

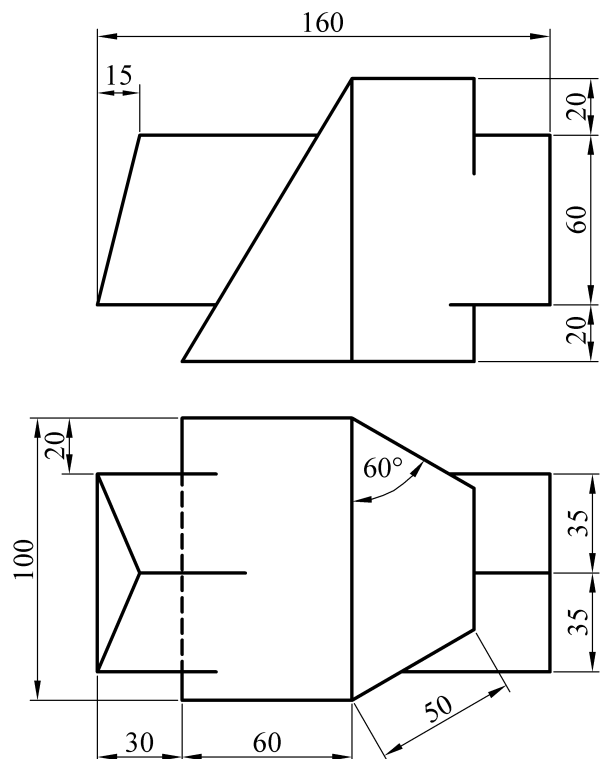


Fig. 7

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