AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA   **S61B**

B JUNIOR CERTIFICATE EXAMINATION, 2003

TECHNICAL GRAPHICS — HIGHER LEVEL

THURSDAY 12 JUNE — MORNING, 9:30 - 12:30

SECTION B — 280 MARKS

<u>INSTRUCTIONS FOR SECTION B</u>

(a) <u>Any four</u> questions to be answered.

(b) All questions in this Section carry equal marks.

(c) The number of the question must be distinctly marked by the side of each answer.

(d) Work on <u>one side</u> of the paper only.

**(e) Examination number must be distinctly marked on each sheet of paper used.**

1. A pictorial view of a monument is shown.

    (a) Draw an elevation looking in the direction of the arrow A.

    (b) Draw an end view looking in the direction of the arrow B.

    (c) Draw a plan projected from (a) above.

    (d) Draw an auxiliary elevation of the complete structure which will show the true shape of the surface S.
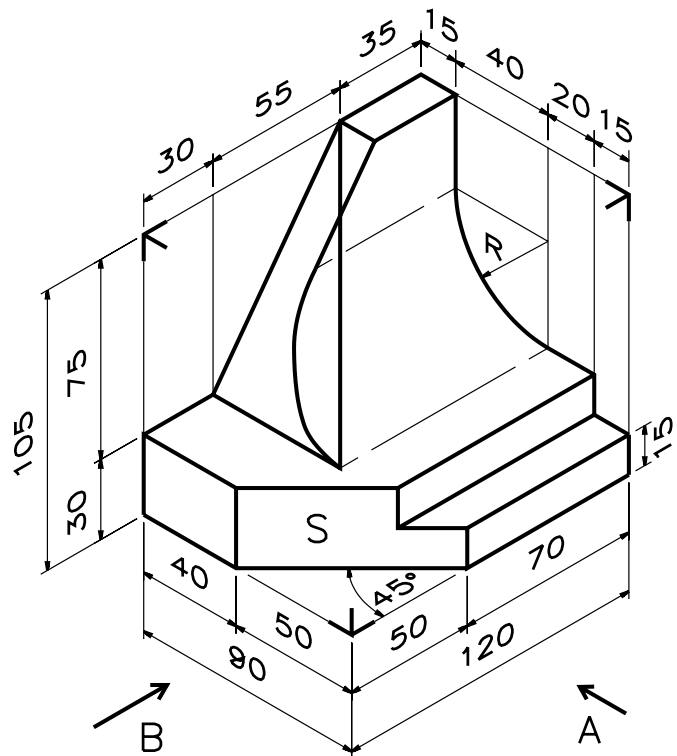
**2.** The figure shows the outline of a perfume bottle including a square label.

    (a) Draw the figure to the given dimensions showing all constructions clearly.

    (b) Draw a similar figure to the given figure having an overall height of 140.
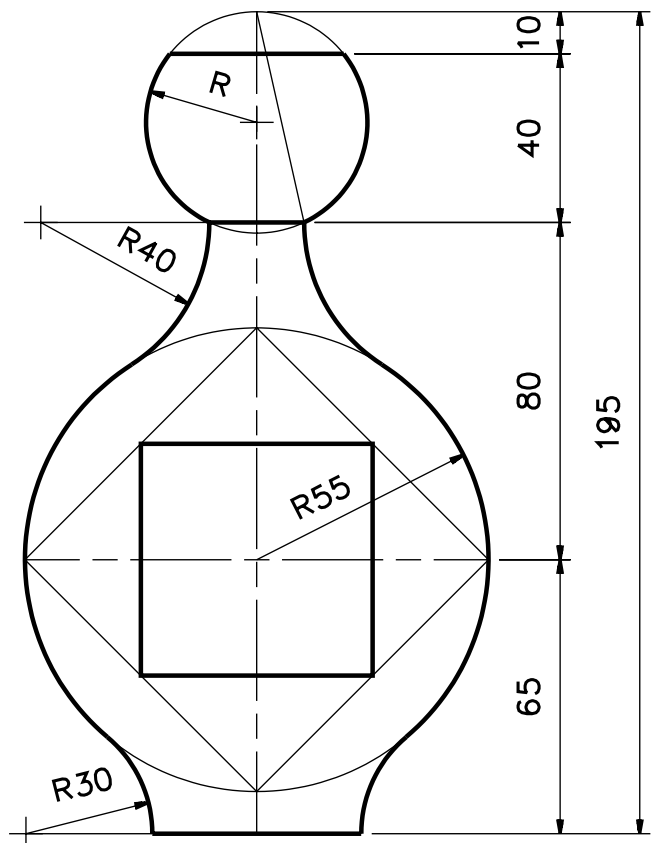
3. The figure shows the axonometric axes required for the isometric projection of a chess piece.

The side elevation and plan are shown in their required positions.

   (a) (i) Draw the axonometric axes X, Y and Z.

       (ii) Draw the plan orientated at 45º as shown.

       (iii) Draw the side elevation orientated at 15º as shown.

   (iv) Draw the axonometric projection of the chess piece.
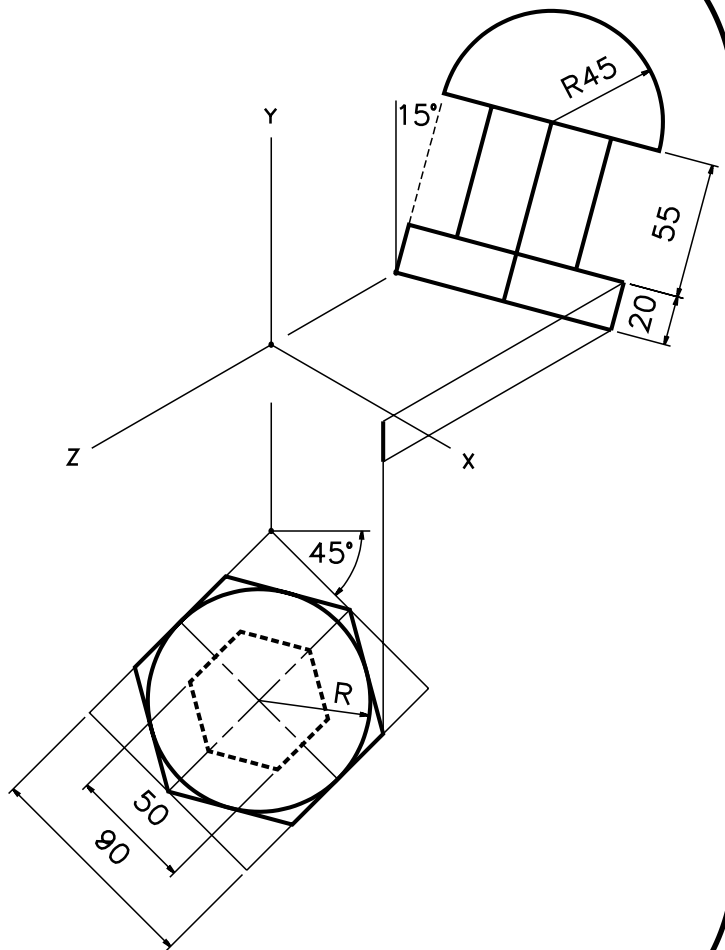
              OR

   (b)   Draw the isometric projection of the chess piece using the isometric scale method.

**4.** The elevation and end view of a container based on a pentagonal prism are shown. The container encloses a snooker ball which is tangential to all surfaces.

   (a) Draw the given views.

   (b) Show the projections of all points of contact between the ball and the surfaces of the container.

   (c) Draw the complete surface development of the container.

ELEVATION   END VIEW
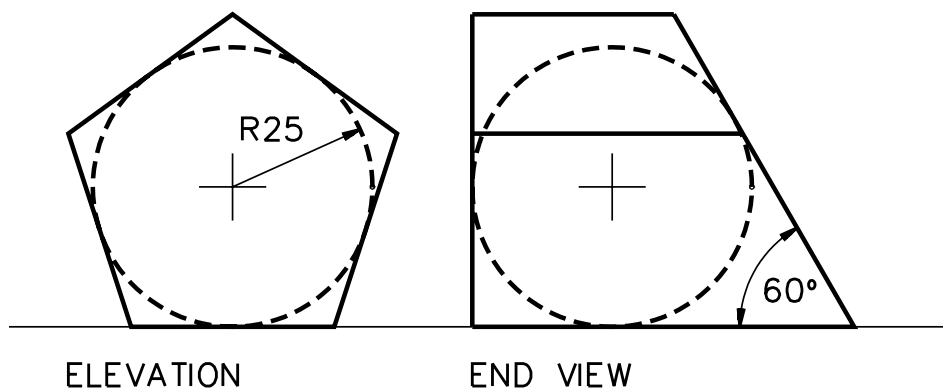
5. The figure shown is subjected to transformations in the following order:-

(i) Axial symmetry in the line L - L1.

(ii) Central symmetry in point S.

(iii) Translation equal to *ST*.

(iv) Rotation clockwise about point R through an angle of 35º.
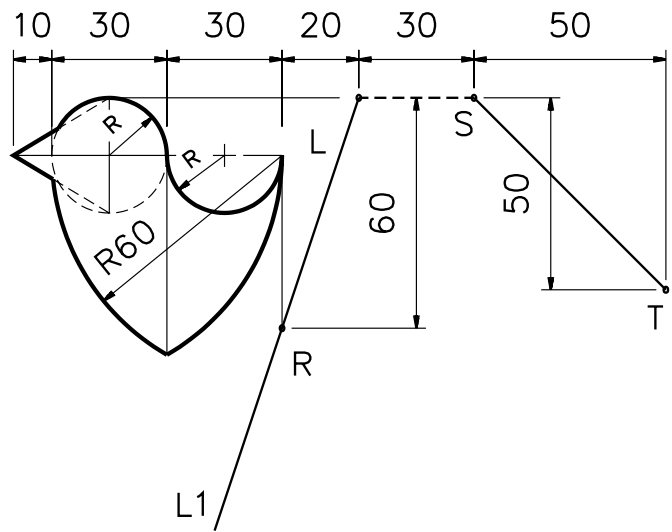
Draw the given figure and determine the image figures in each of the transformations.

6. The figure shows a design based on the elevation of a sports stadium. The curve ABCDE is based on an semi-ellipse with major axis 100 and minor axis 60. The focal points F and G are indicated. The lines BR and DR are tangential to the ellipse at points B and D respectively. The curve QRS is based on the same semi-ellipse.

The curves AP and ET are semi-parabolas with vertices at A and E respectively.

Draw the design showing all construction lines.