AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA **S61A**

A JUNIOR CERTIFICATE EXAMINATION, 2003

TECHNICAL GRAPHICS — HIGHER LEVEL

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

TOTAL MARKS 400 (Sections A and B)

Examination Number	Centre Stamp
☞	☞

INSTRUCTIONS

(a) Answer <u>any ten</u> of the short answer questions in Section A (120 marks) using the spaces provided. All questions in Section A carry equal marks.

(b) Answer <u>any four</u> of the six questions in Section B (280 marks). All questions in Section B carry equal marks.

(c) Examination Number must be distinctly marked <u>in the space provided above</u> and on each sheet of paper used.

(d) All construction lines must be clearly shown.

(e) All measurements are in millimetres.

(f) Hand up this answer book (Section A) at the end of the examination.

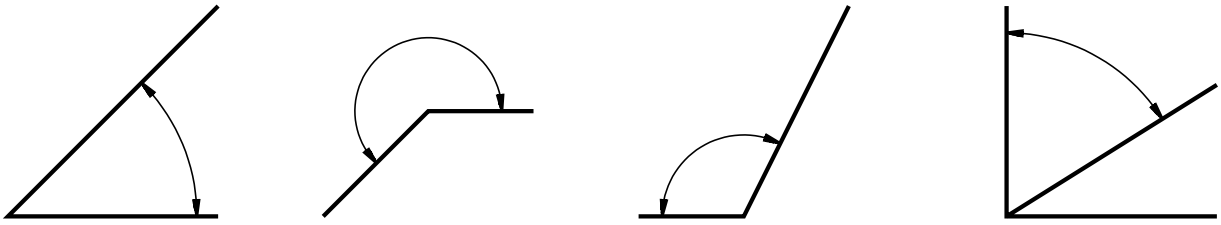
For Examiner's Use Only		
QUESTION		**MARK**
Section A (Total)		
Section B	**Q1**	
	Q2	
	Q3	
	Q4	
	Q5	
	Q6	
TOTAL	➡	
GRADE	➡	

<u>WARNING</u>

THIS ANSWERBOOK MUST BE HANDED UP AT THE END OF THE EXAMINATION OTHERWISE MARKS WILL BE LOST.

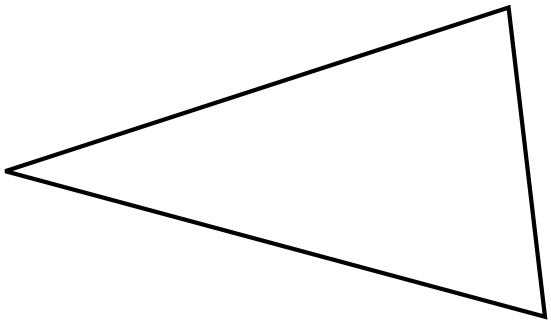
1. Correctly fill in the labels for each of the diagrams by selecting from the table shown.

TABLE			
Acute angle	Complementary angle	Obtuse angle	Reflex angle

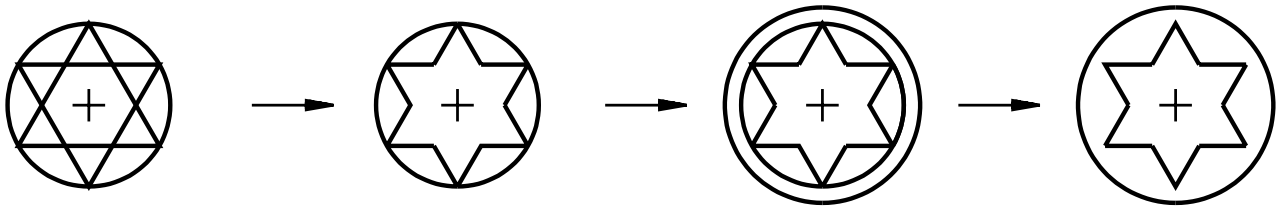


_____ _____ _____ _____

2. Describe a circle about the triangle shown.

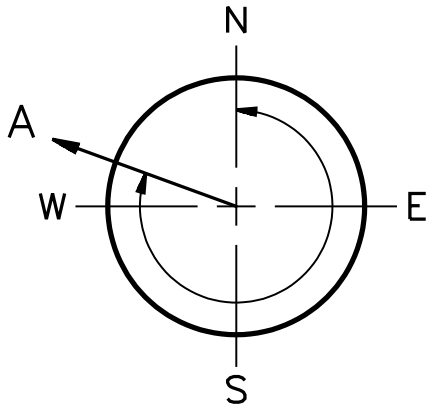


3. List the CAD commands used to edit the figure as shown in the sequence below.

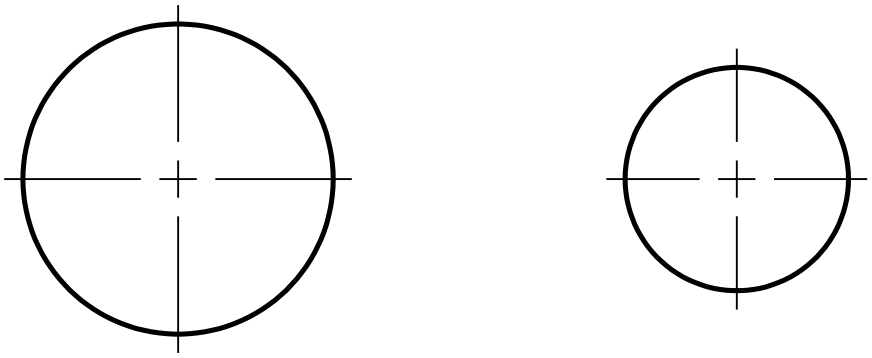


Commands used: _____ _____ _____

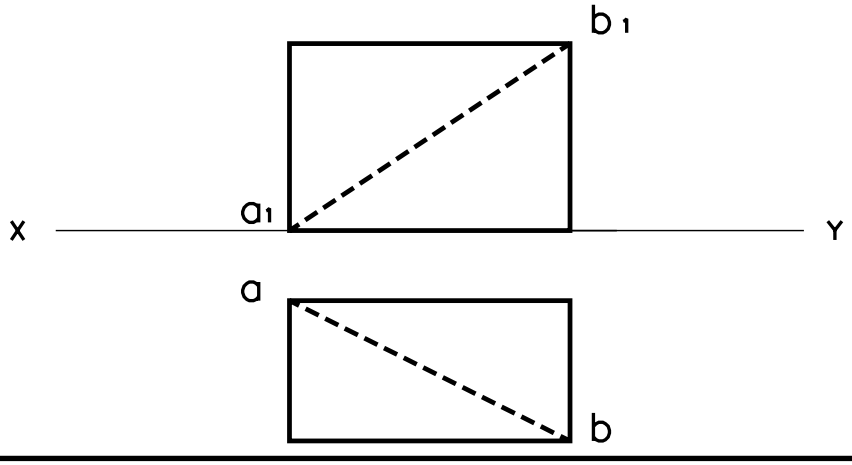
4. The figure shows a compass. Use a protractor to determine the bearing of the direction A with reference to North as shown. Write your answer in the box provided.



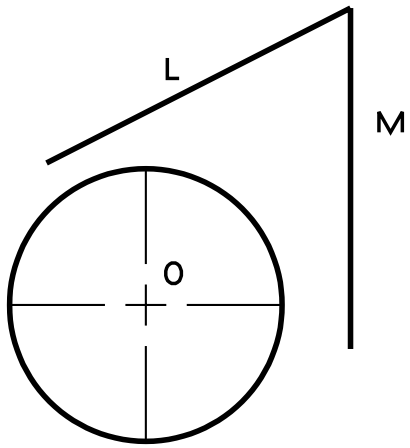
5. Construct an internal tangent to the two circles shown. Show clearly how both points of contact are determined.



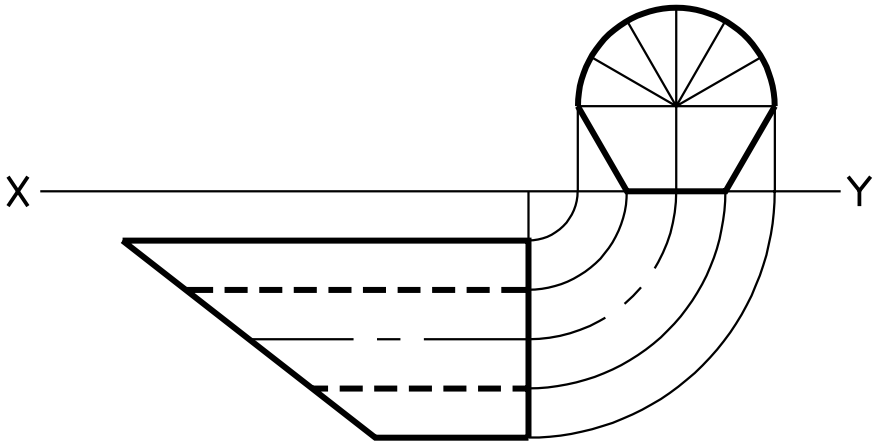
6. Shown are the elevation and plan of a prism. Determine the true length of the diagonal AB.



7. Shown is a circle with centre O and the lines L and M. Locate a point P which is 10mm from the circumference of the circle and equidistant from both lines.

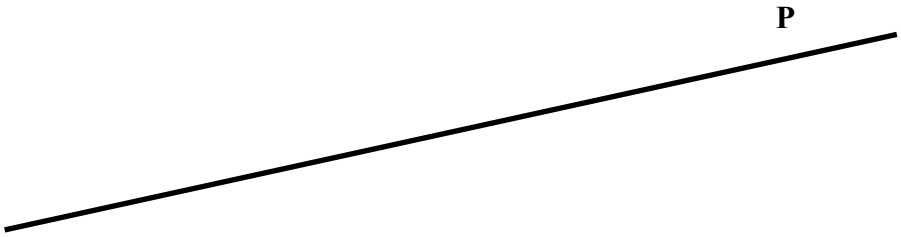


8. The plan and end view of a cut solid are shown. Project the elevation on the given X-Y line.

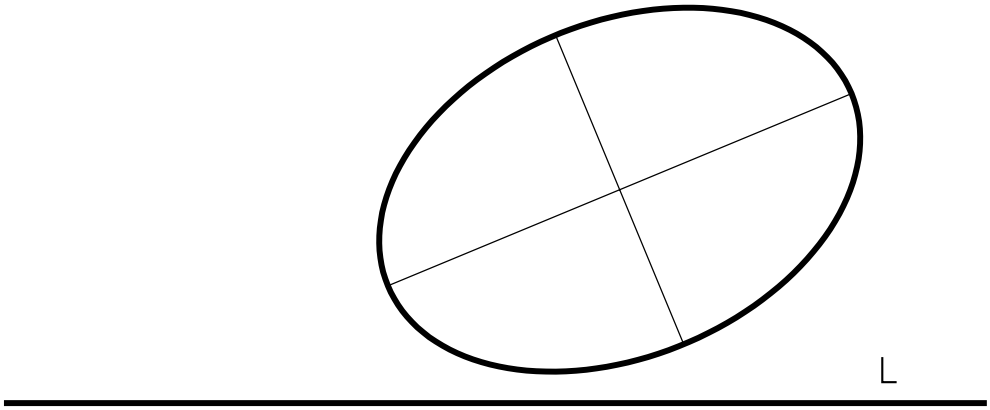


9. The line P represents the perimeter of a triangle whose sides are in the ratio 3:4:5

Divide the perimeter in the required ratio and construct the triangle.

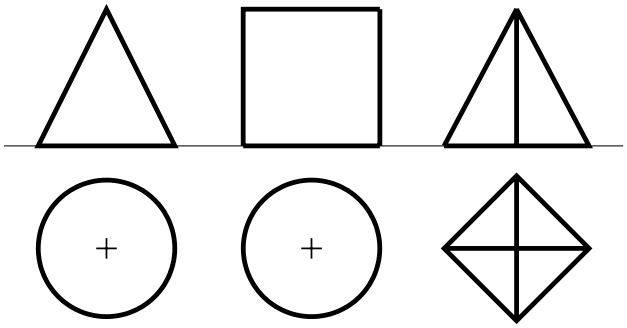


10. Draw a tangent to the ellipse which makes an angle of 45º to the line L. Show clearly how to determine the point of contact for the tangent.

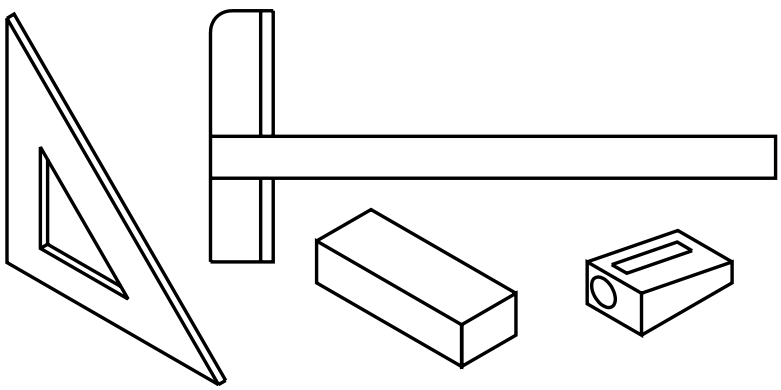


11. Shown is the elevation and plan of a cone, a cylinder and a pyramid.

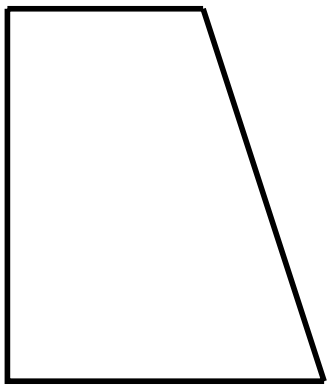
Make a <u>freehand pictorial</u> sketch of the solids in the space provided.



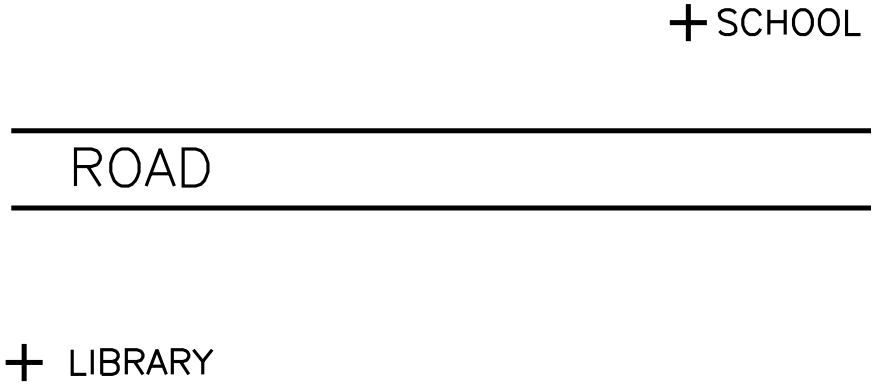
12. Apply shading and texture to enhance the sketch of the Technical Graphics equipment shown.



13. Convert the given quadrilateral into a square of equal area.

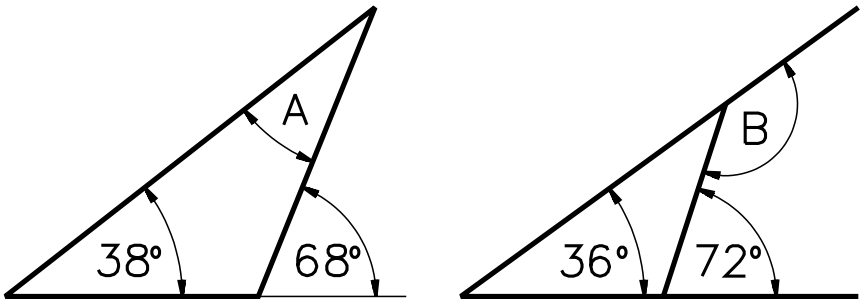


14. A pedestrian crossing is to be provided in order to facilitate students walking between the school and a library at the other side of the road, as shown in the figure. Determine the position for the crossing which will result in the shortest possible journey.



15. Write in the measure of the angles A and B in the spaces provided below.

A = _____ B = _____



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

INSTRUCTIONS FOR SECTION B

(a) Any four 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 one side of the paper only.

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

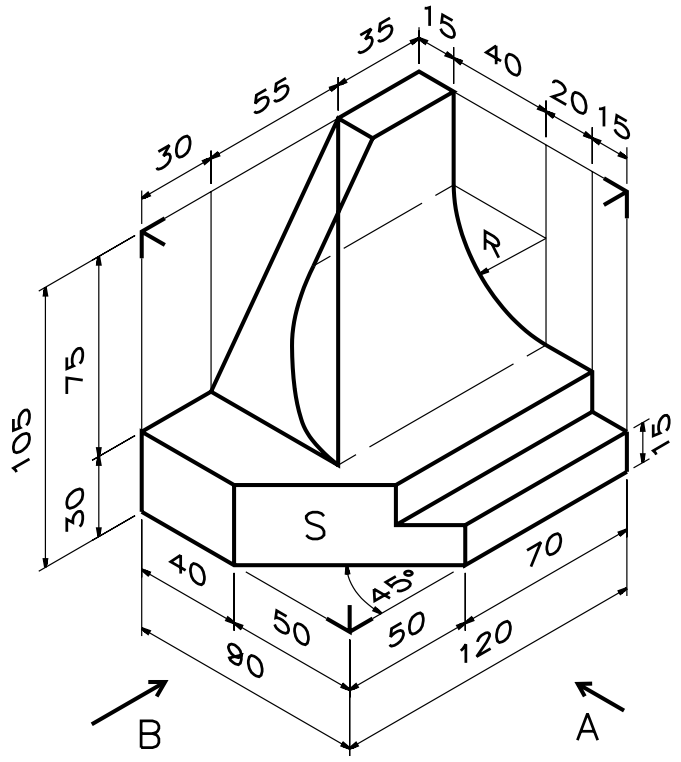
1. A pictorial view of a monument is shown.

(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.

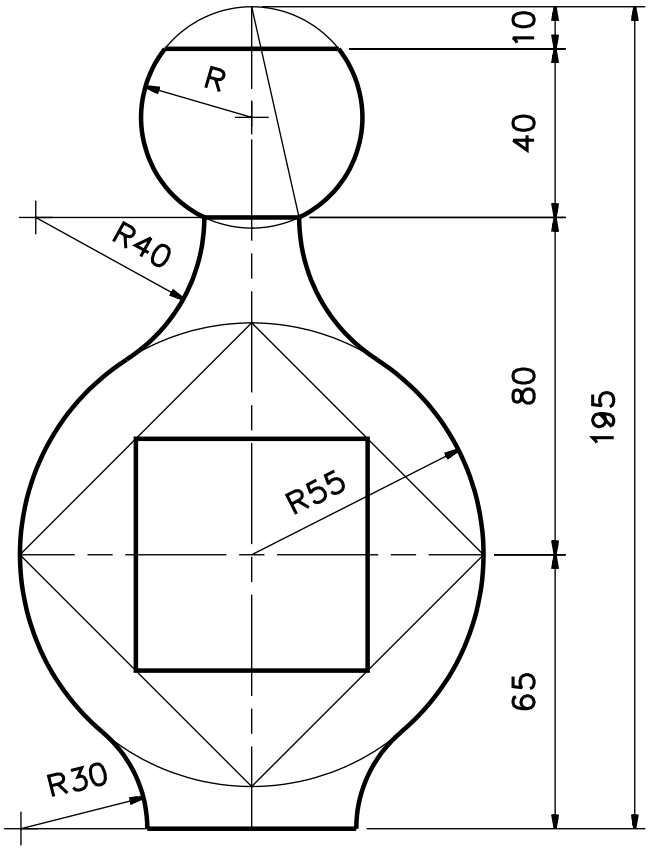
(d) Draw an auxiliary elevation of the complete structure which will show the true shape of the surface S.



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.

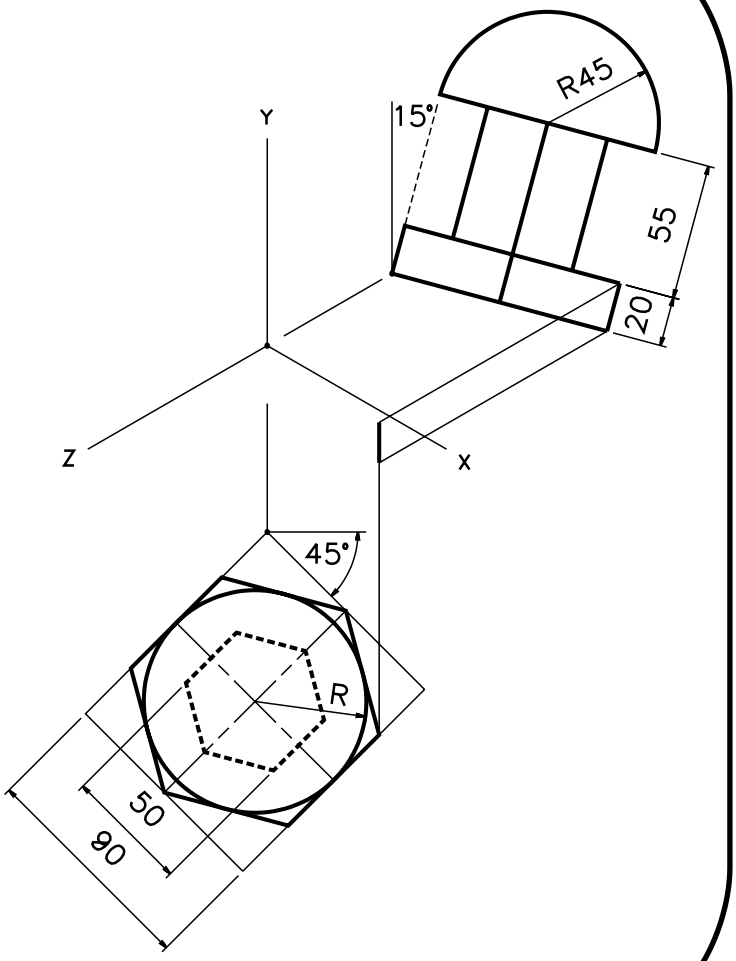
(ii) Draw the plan orientated at 45º as shown.

(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.

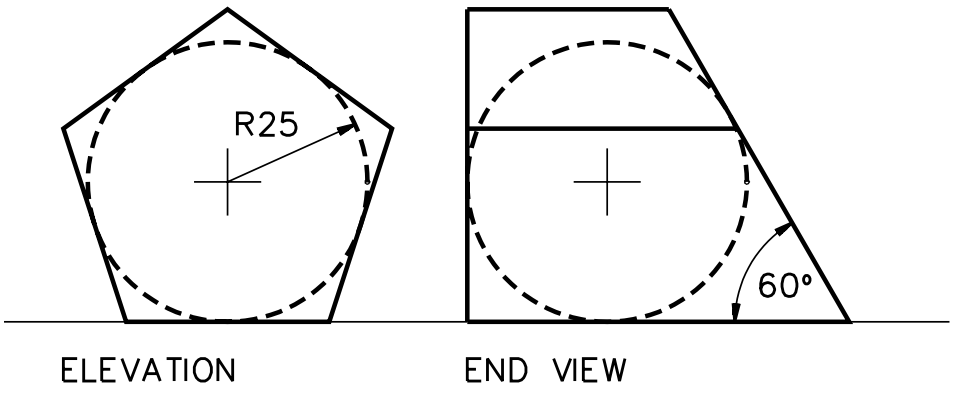


4. The elevation and end view of a container based on a pentagonal prism are shown. The container encloses a snooker ball which is tangential to all surfaces.

(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.



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

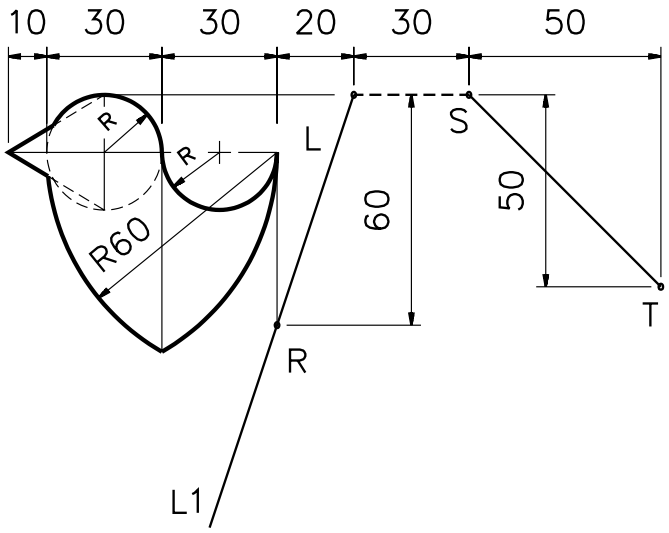
(i) Axial symmetry in the line L - L1.

(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.