



Junior Certificate Examination 2004

Technical Graphics
Higher Level
Section A (120 marks)

Monday 21 June
Afternoon 2:00 - 5:00

Centre Number

Instructions

- (a) Answer **any ten** questions in the spaces provided.
All questions carry equal marks.
- (b) Construction lines must be clearly shown.
- (c) All measurements are in millimetres.
- (d) This booklet must be handed up at the end of the examination.
- (e) Write your Examination Number in the box provided below and on all other pages used.

Question	Mark
Section A	
1	
2	
3	
4	
5	
6	
TOTAL →	
GRADE →	

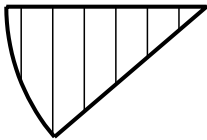
Examination Number 

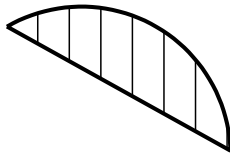
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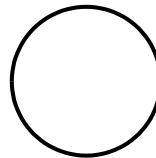
Section A: Answer **any ten** questions.

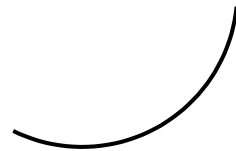
1. Correctly fill in the labels for each of the diagrams by selecting from the table shown.

TABLE			
Arc	Circumference	Sector	Segment







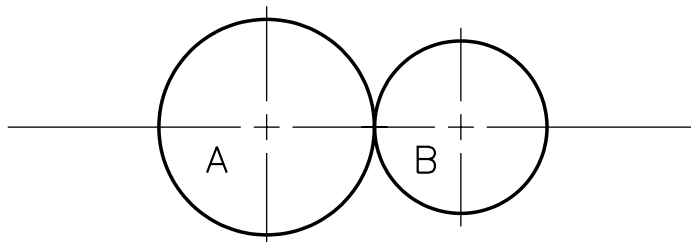
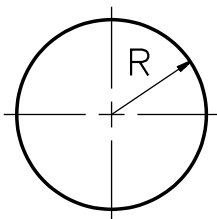


2. Apply shading to the drawing of the chair shown.

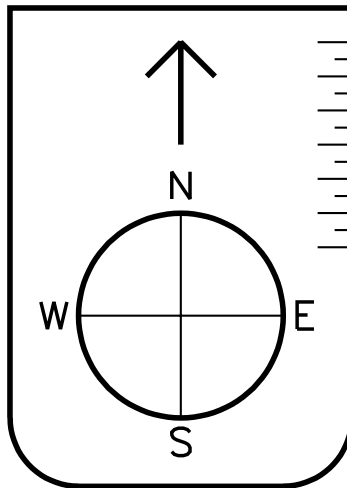


3. Draw a circle of given radius R to touch the two circles A and B.

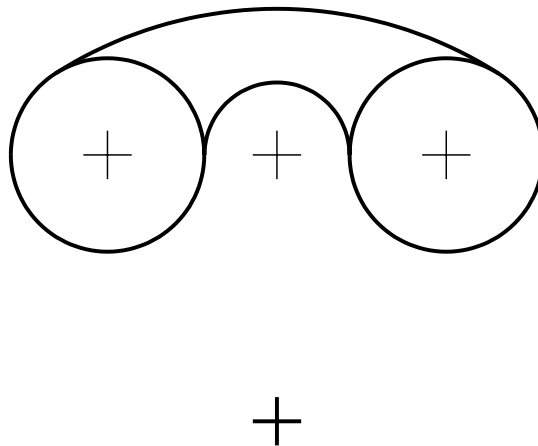
Show the necessary construction and points of contact.



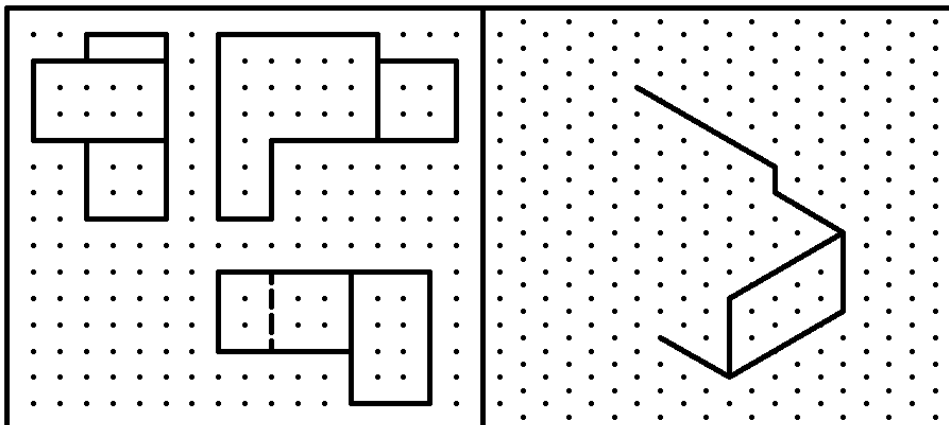
4. Indicate the bearing “North 75° West” on the compass shown.



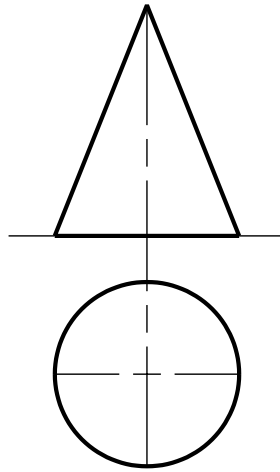
5. Identify the points of contact in the drawing of the safety goggles. Show all construction.



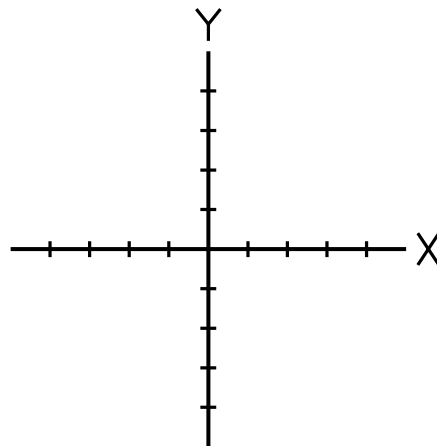
6. Shown on the square grid are three orthographic views of an object. The **incomplete pictorial sketch** of the object is shown on the isometric grid. Complete the pictorial sketch.



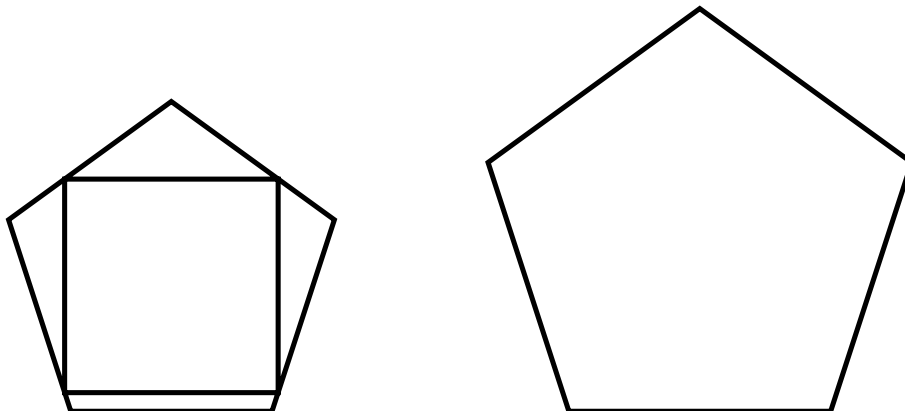
7. A ring of diameter 20 is to be dropped on to the given cone.
Show the exact position of the ring in plan and elevation.



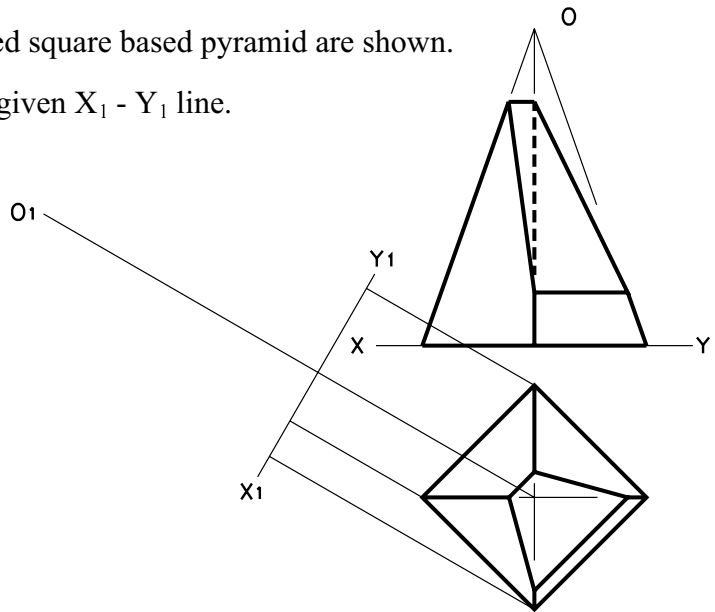
8. The axes X and Y shown below have been marked in intervals of 10 units.
Indicate the position of the following points:- P (10,20), Q (30,-20) and R (-40,-30).



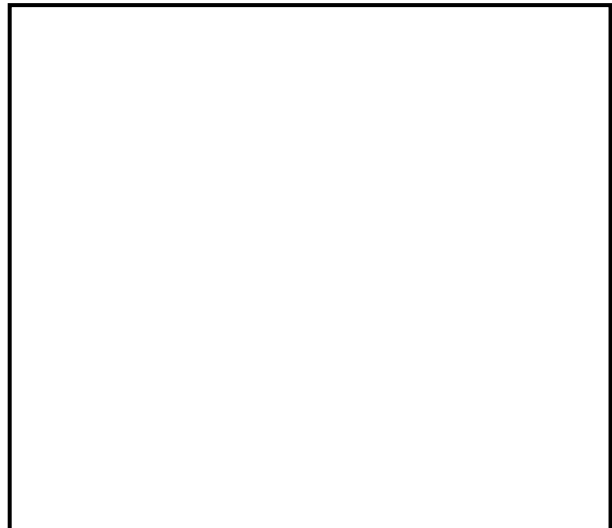
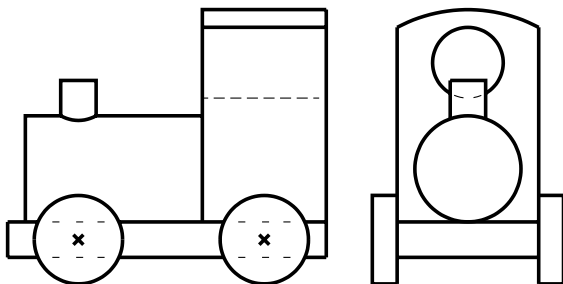
9. The figure shows two pentagons. A square is inscribed in the smaller of the two pentagons.
Complete the figure by inscribing a square in the larger pentagon.



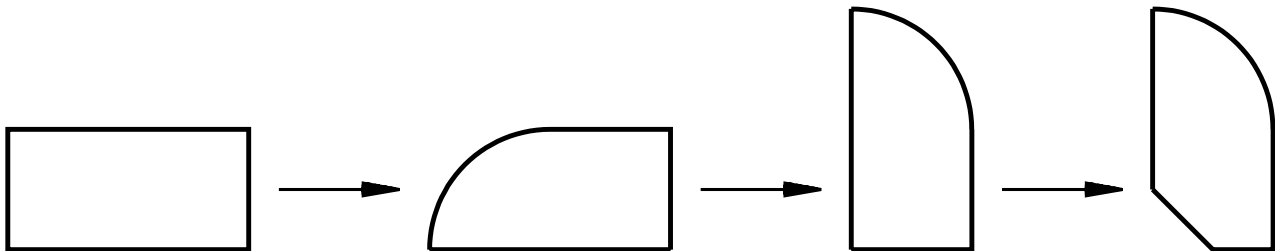
10. The plan and elevation of a truncated square based pyramid are shown.
Draw an auxiliary elevation on the given $X_1 - Y_1$ line.



11. The elevation and end view of a child's toy are shown.
Make a **freehand** pictorial sketch of the child's toy in the space provided.

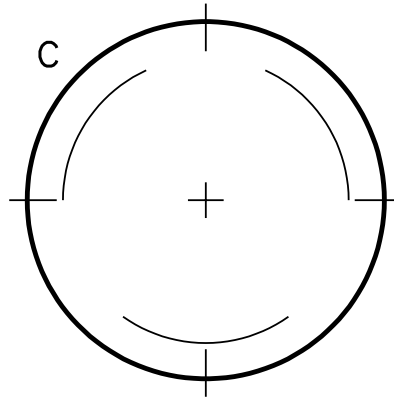


12. List the CAD commands used to edit the figure as shown in the sequence below.



Commands used:

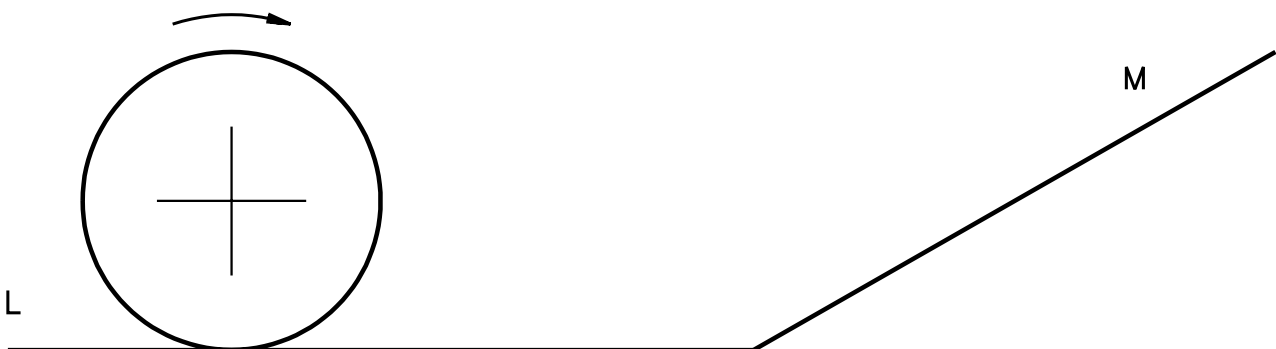
13. A logo labelled A is shown. Inscribe a similar logo in the given circle C.



14. In a survey of student pastimes, a Junior Certificate class returned the following results:-
Sport 40%, Music 30%, Television 20%, Reading 10%.
Divide the given rectangle to represent this information graphically.
Use shading to enhance the presentation.



15. The circle shown rolls along the line L until it touches the line M. Determine the position of the circle when it is touching both lines. Show all construction and both points of contact.



This booklet must be handed up at the end of the examination.

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Junior Certificate Examination 2004

Technical Graphics

Higher Level

Section B (280 marks)

Monday 21 June

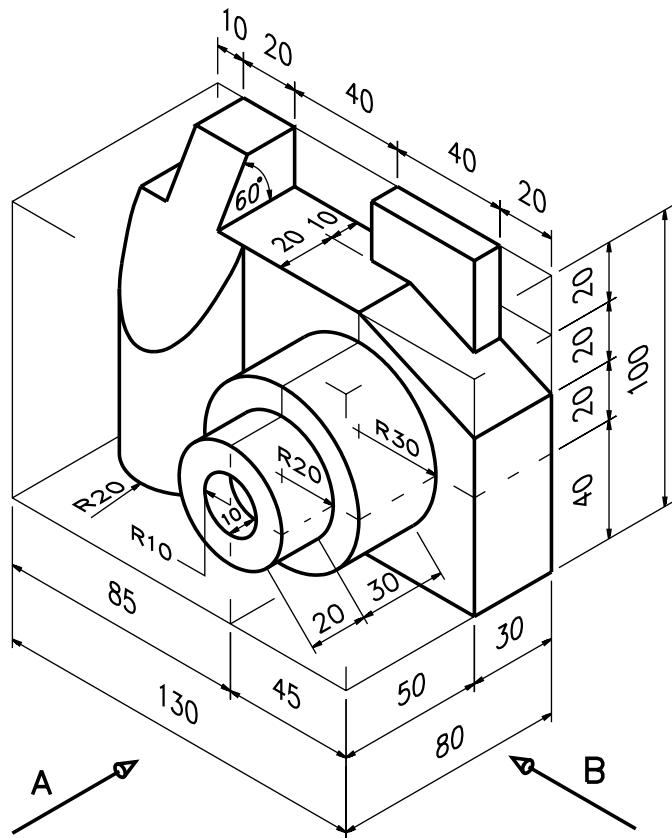
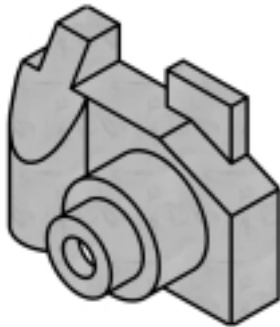
Afternoon 2:00 - 5:00

Instructions

- (a) Answer **any four** questions. All questions carry equal marks.
- (b) The number of the question must be distinctly marked by the side of each answer.
- (c) Work on **one side** of the paper only.
- (d) Write your Examination Number on each sheet of paper used.

1. A pictorial view of a digital camera is shown.

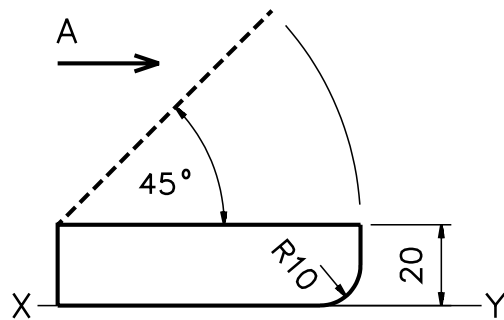
- (a) Draw an elevation looking in the direction of the arrow A.
- (b) Draw an end view looking in the direction of the arrow B.
- (c) Draw a plan projected from (a) above.



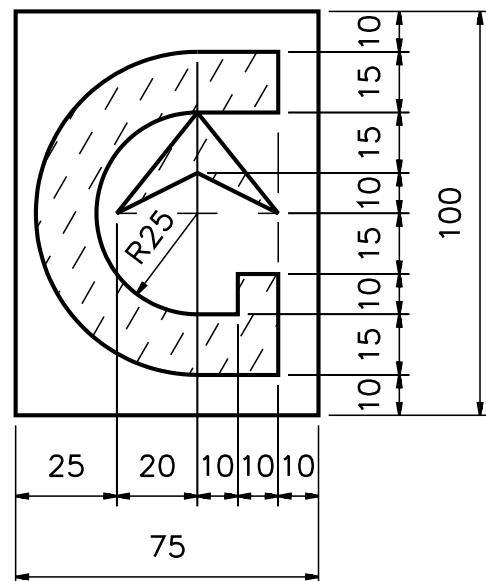
2. The elevation and plan of a laptop computer are shown.

The cover of the laptop computer contains a logo as shown in the plan.

- (a) Draw the given elevation and plan.



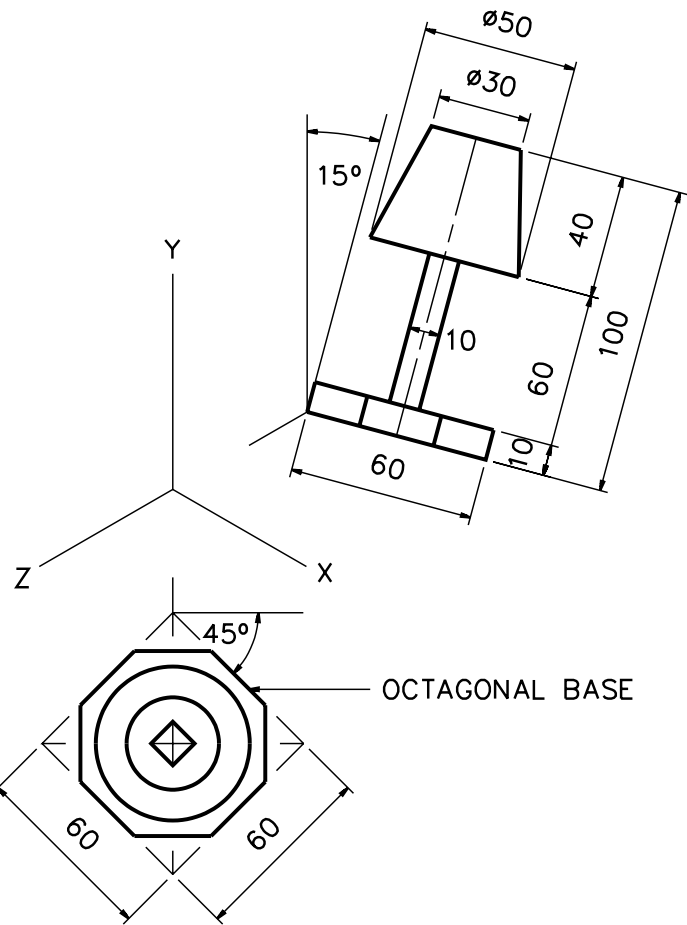
- (b) Project an end elevation in the direction of arrow A to show the cover of the laptop computer in the open position, as indicated by the broken line in elevation.



3. The figure shows the axonometric axes required for the isometric projection of a table lamp.

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 45° as shown.
 (iii) Draw the side elevation orientated at 15° as shown.
 (iv) Draw the completed axonometric projection of the table lamp.



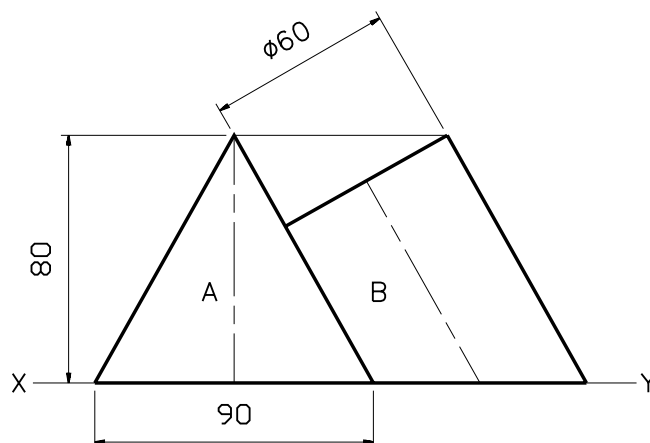
OR

- (b) Draw the completed isometric projection of the table lamp using the isometric scale method.

4. The figure shows the elevation of a sculpture based on a cone A and a truncated cylinder B.

The cone and cylinder are in contact with each other.

- (a) Draw the given elevation and project a plan.
 (b) Draw the development of the **curved surface** of the truncated cylinder.



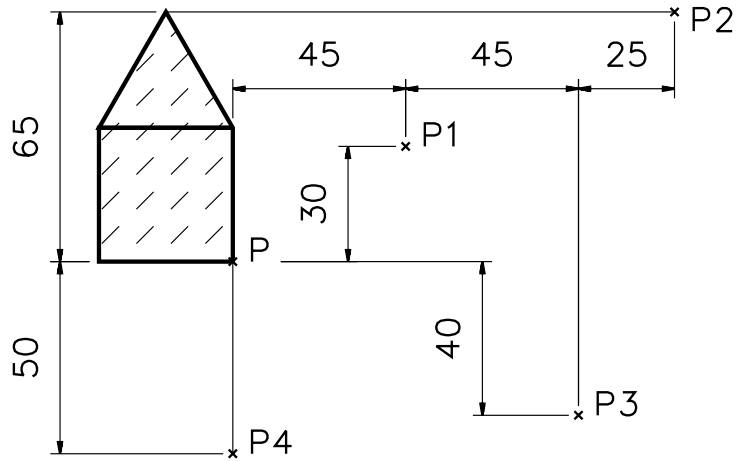
5. The figure shown is based on a square and an equilateral triangle.

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

- (i) Central symmetry.
- (ii) Axial symmetry.
- (iii) Translation.
- (iv) Rotation clockwise through 120° .

P1, P2, P3 and P4 show the positions of the corner P under these transformations.

Draw the given figure and determine the image figures in each of the transformations.



6. The figure shows a design for an monument.

A pictorial sketch of the monument is also shown.

The curve ABC is a parabola with vertex B. The curve PQRST is a semi-ellipse with minor axis 80. Normals to the elliptical curve are drawn at points Q and S.

Draw the given design.

Show clearly the constructions necessary to determine the major axis of the ellipse and the normals at Q and S.

