



*Pre-Junior Certificate Examination, 2016*

***Technical Graphics  
Higher Level  
Section A  
(120 marks)***

***Time : 3 Hours***

***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 name, school's name and teacher's name in the boxes provided below and on all other pages used.

**Name:** \_\_\_\_\_

**School:** \_\_\_\_\_

**Teacher:** \_\_\_\_\_

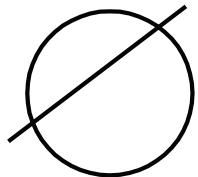
School Stamp	

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

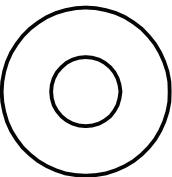
**SECTION A.** Answer **any ten** questions. All questions carry equal marks.

1. Fill in the label for **each** diagram by selecting from the given list.

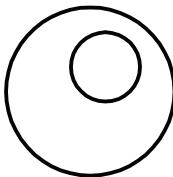
- Concentric
- Eccentric
- Secant
- Chord



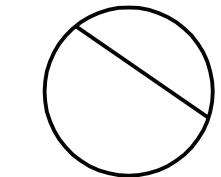
1. \_\_\_\_\_



2. \_\_\_\_\_



3. \_\_\_\_\_



4. \_\_\_\_\_

2. Draw a circle so that the circumference will pass through the points **X**, **Y**, **Z**.

Show all construction and points of contact.

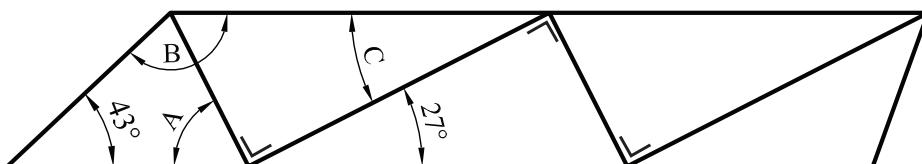
+ Y

X<sup>x</sup>

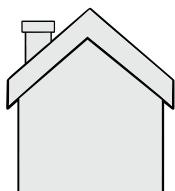
+ Z

3. The figure shows a timber truss, designed to support a roof.

Write down the measures of the angles marked **A**, **B** and **C**.

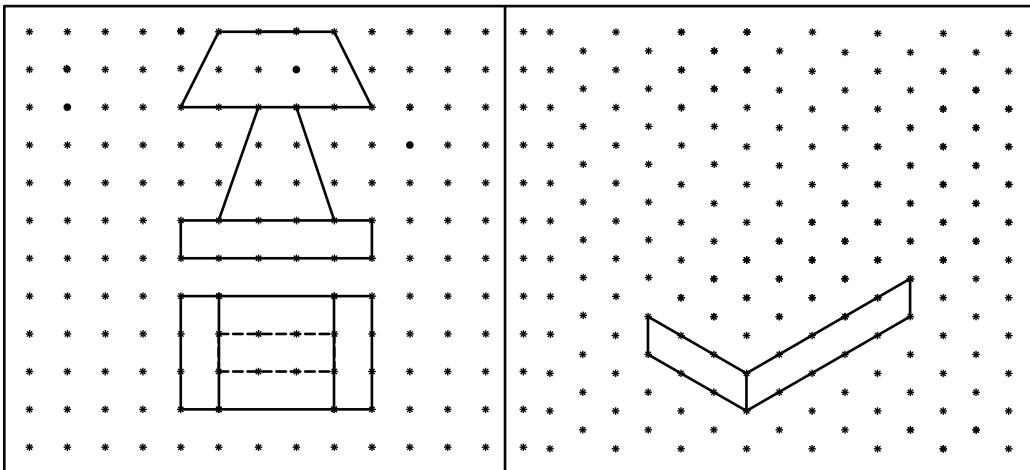


A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_



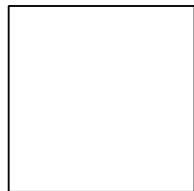
- 4.** The elevation and plan of a lamp are shown on the square grid.

Make a **freehand pictorial sketch** of the lamp. Colour or shade the sketch.



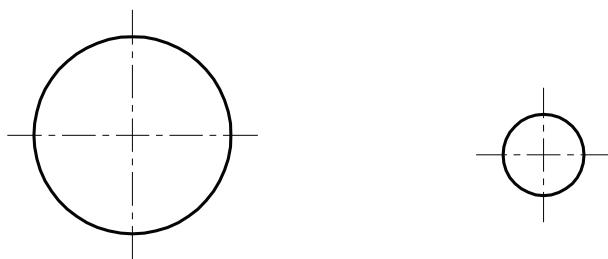
- 5.** The figure shows the outline of a square window. This window is to be replaced by a new square window twice its area.

Draw an outline of the new square window showing all construction.



- 6.** Draw an internal tangent between the given circles.

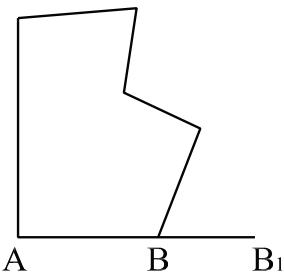
Show all construction and points of contact.



7. The figure shows the outline of an arcade game.

Draw a new arcade game similar to the given arcade game, with length **AB** increased to **AB<sub>1</sub>**.

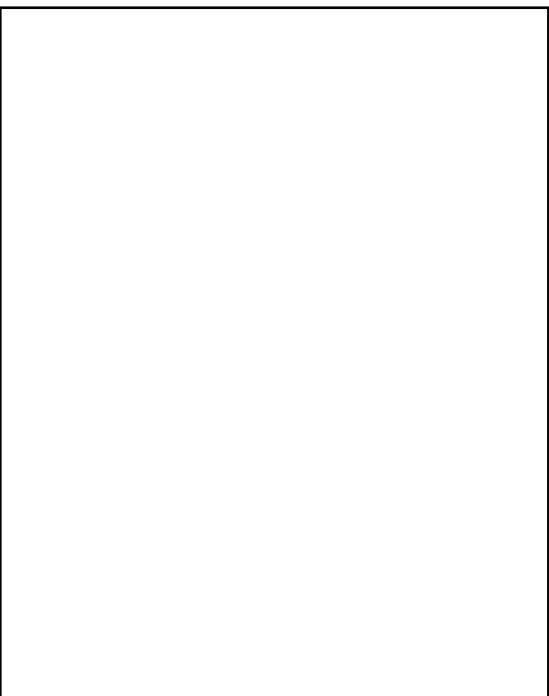
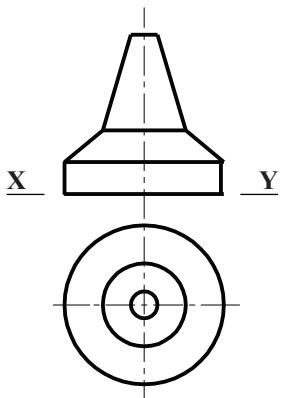
Colour **or** shade the new arcade game.



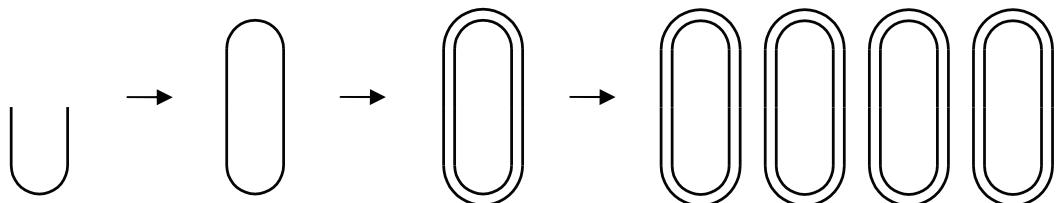
8. The elevation and plan of a traffic cone are shown.

In the space provided, draw a **freehand pictorial sketch** of the traffic cone.

Colour **or** shade the sketch.



9. Write down **any three** CAD commands used in the sequence.



Any **three** CAD commands: \_\_\_\_\_

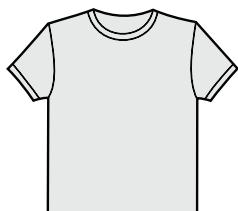
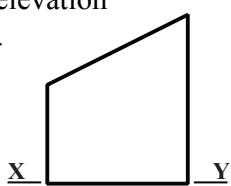
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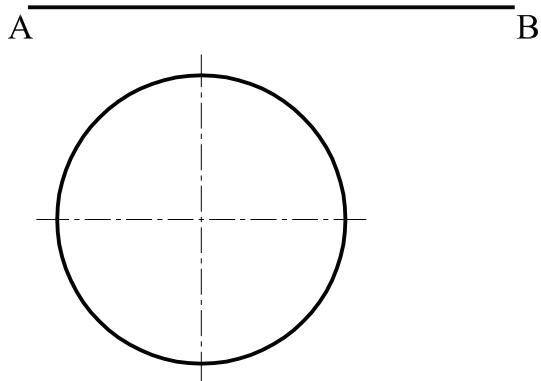
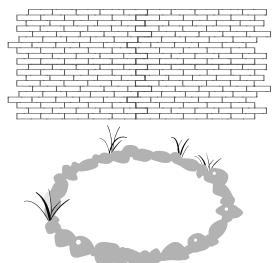
- 10.** A 3D graphic shows a t-shirt. The sleeve is based on a truncated cylinder. The figure shows the elevation and plan of the sleeve.

Draw a development of the sleeve.



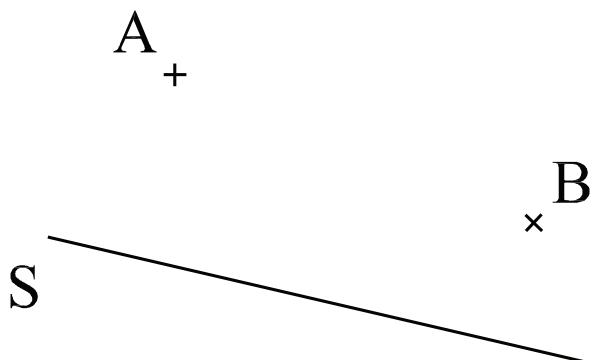
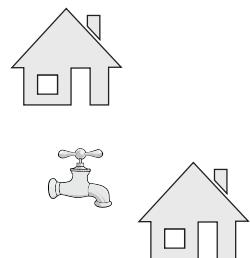
- 11.** The figure shows the plan of a garden containing a wall and a circular pond. A 3D graphic of the garden is also shown.

Locate a point in the plan which is 15 mm from line **AB** and 25 mm from the circumference of the circle.



- 12.** The figure shows the location of two houses, **A** and **B**, and a water main, line **S**. A 3D graphic is also shown.

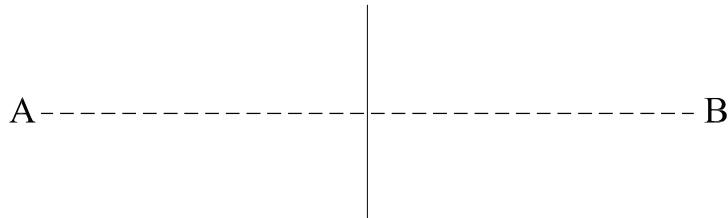
Locate a point **P** on the line **S** so that the least amount of pipe is used to connect house **A** and house **B** to the water main.



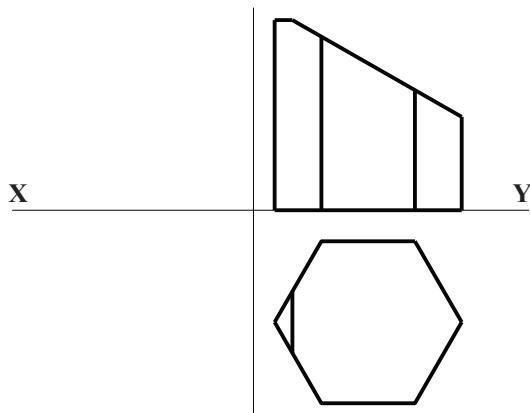
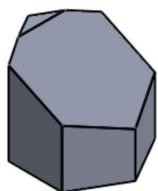
- 13.** The figure below shows the major axis and half of the minor axis of an ellipse.

Locate a point on the ellipse on the line **AB**.

**Note:** It is not necessary to draw the ellipse.

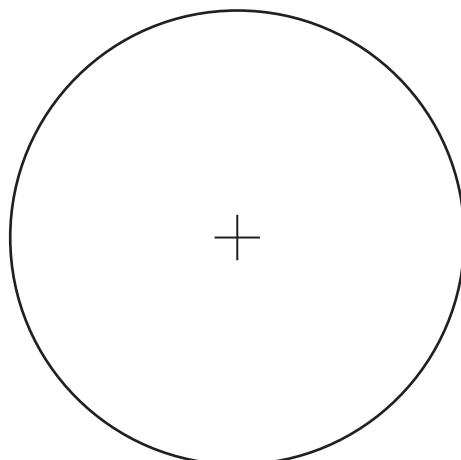


- 14.** The figure shows the plan and elevation of a paperweight. A 3D graphic of the paperweight is also shown. Draw the end view of the paperweight.



- 15.** Twenty students were surveyed about their preferred device for watching videos, television shows and movies. Shown below are the results of the survey:

Tablet	-	5 students
Laptop	-	4 students
Phone	-	9 students
Television	-	2 students



Divide the given circle to represent this information graphically as a pie chart.

Colour or shade the completed pie chart.

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