



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2017

Technical Graphics
Higher Level

Section A

(120 marks)

Monday, 19 June
Morning, 9:30 - 12:30

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.

Examination Number:

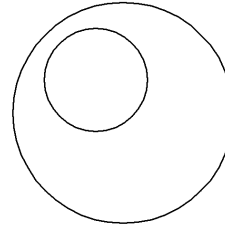
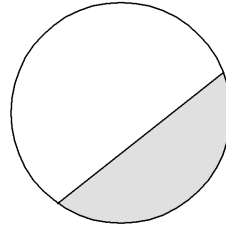
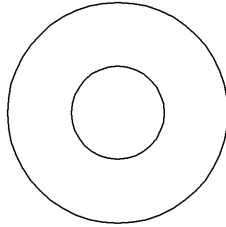
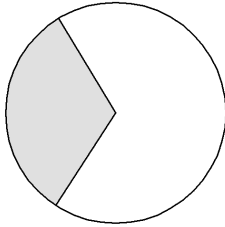
Centre Number

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

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

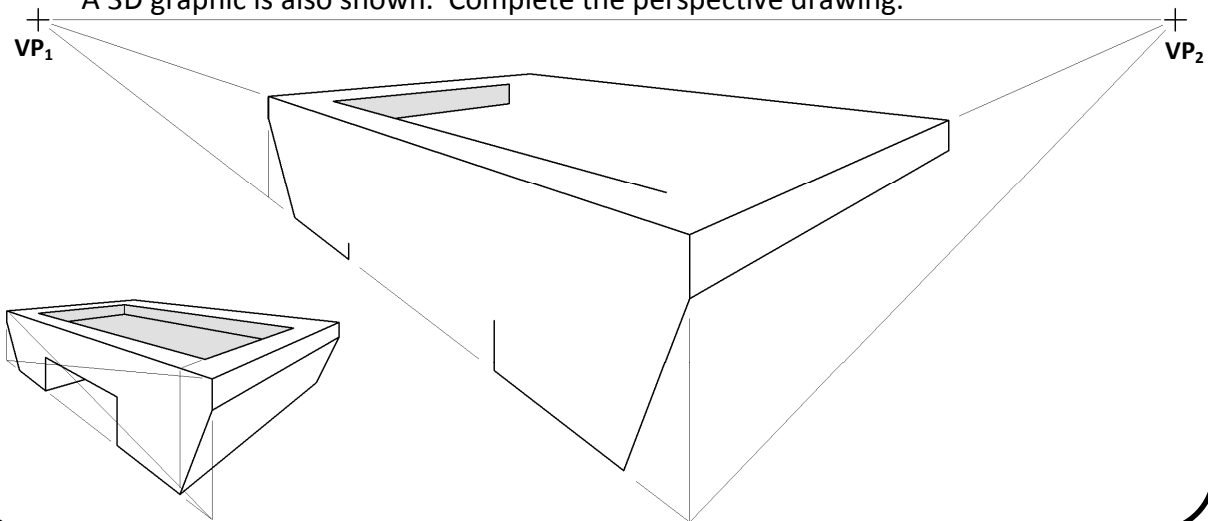
1. Fill in the label for **each** diagram by selecting from the given list.

- Eccentric
- Sector
- Segment
- Concentric



1. _____ 2. _____ 3. _____ 4. _____

2. The figure shows the incomplete perspective drawing of an ice-hockey table. A 3D graphic is also shown. Complete the perspective drawing.



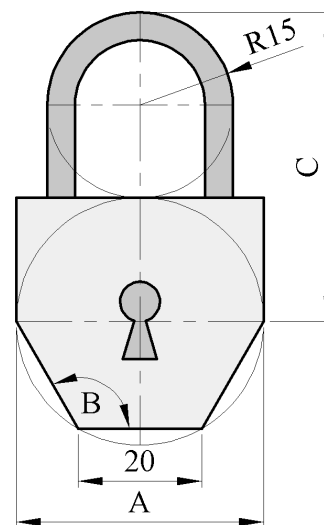
3. The figure shows the outline of a logo for a locksmith.

Write down the measurements of **A**, **B** and **C**.

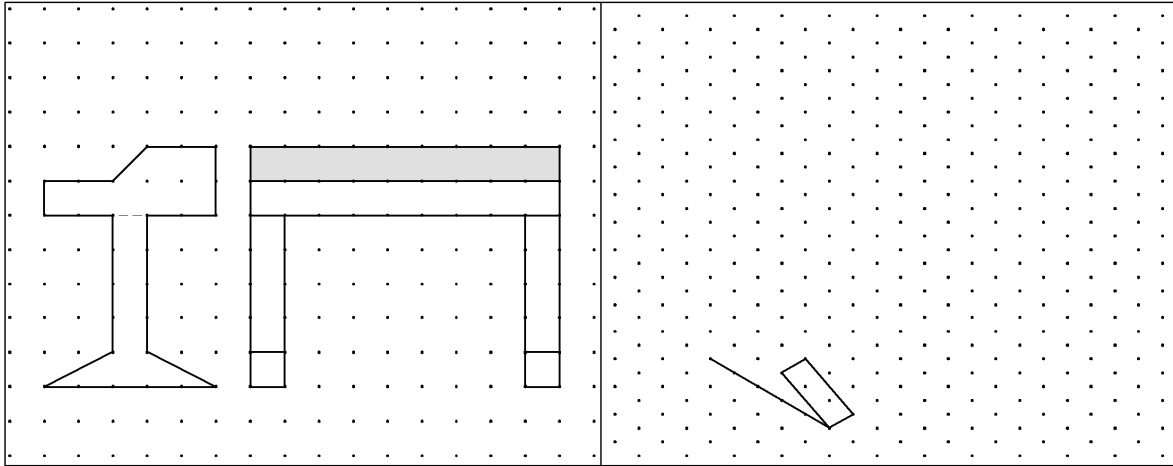
A = _____

B = _____

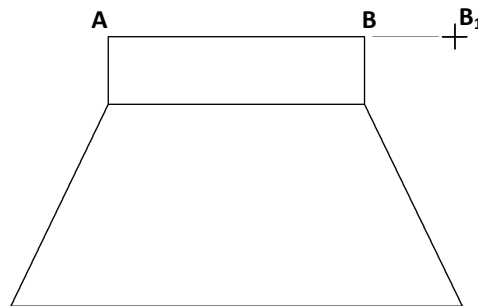
C = _____



4. The elevation and end view of a keyboard are shown on the square grid. Make a **freehand pictorial sketch** of the keyboard. Colour or shade the sketch.



5. The figure shows the design of a lampshade. Draw a new shade similar to the given shade, with the length **AB** increased to **AB₁**.



6. **Fig 1.** shows a 3D graphic of a set of triangular flags. Each flag is an equilateral triangle. The length of side of each flag reduces in the ratio **3:2:1**.

Fig 2. shows the incomplete elevation of the flags.

Find the length of side of each flag and complete the elevation.

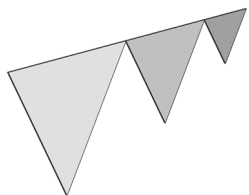


Fig. 1

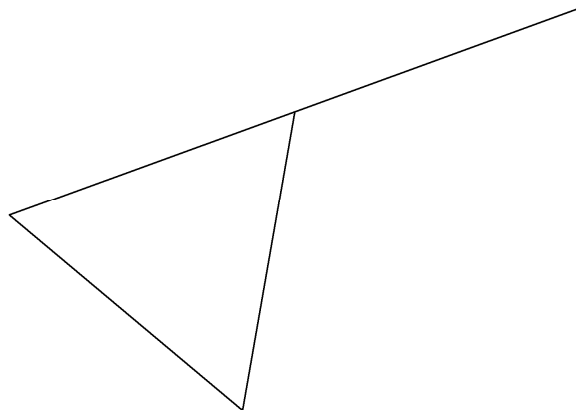
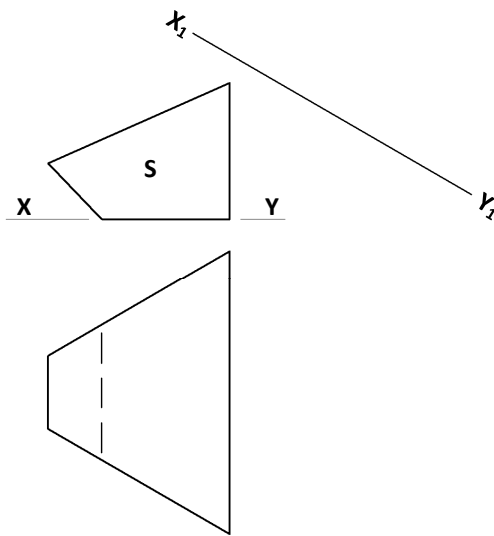
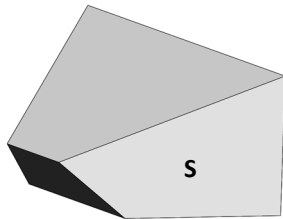


Fig. 2

7. The figure shows the elevation and plan of a fuel bunker. A 3D graphic of the bunker is also shown.

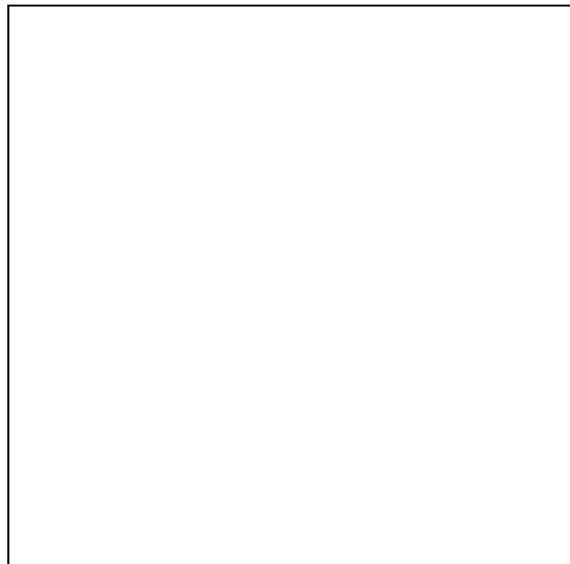
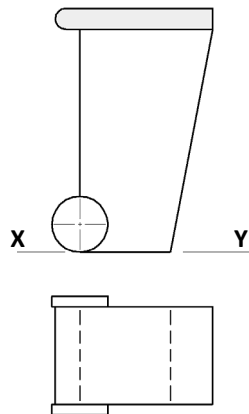
Project an auxiliary elevation of the bunker on the line X_1-Y_1 to show the true shape of surface S .



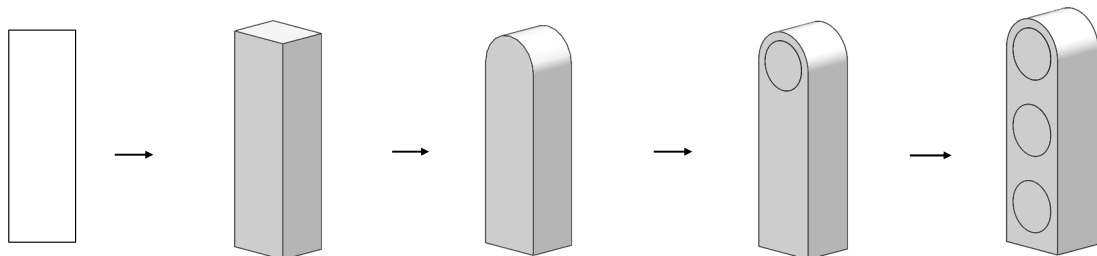
8. The elevation and plan of a recycling bin are shown.

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

Colour **or** shade the completed sketch.



9. Write down **any three** CAD commands used to edit the drawing of the traffic lights as shown in the sequence below.

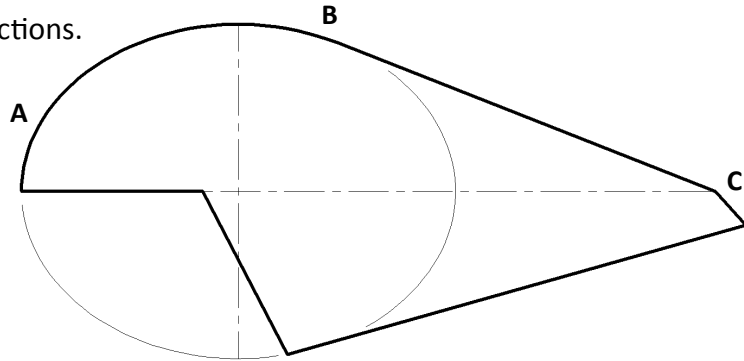


Any **three** CAD commands: _____

10. The graphics show the design of a cyclist's time-trial helmet. The design includes an ellipse **A** and a tangent **BC**.

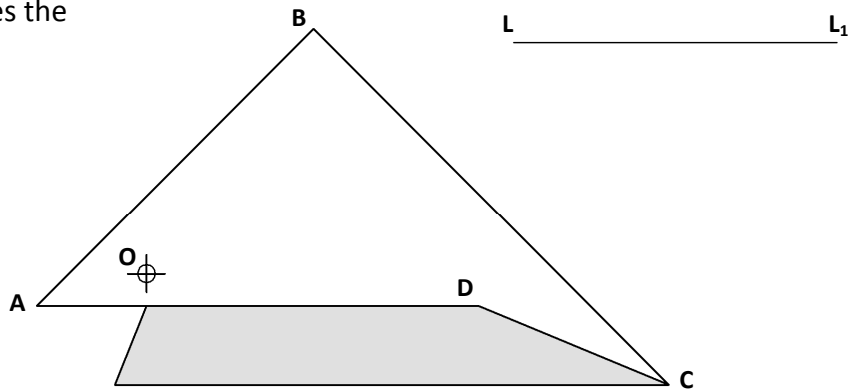
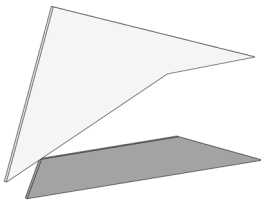
Locate the focal points of the ellipse **A** and determine the point of contact between the tangent **BC** and the ellipse.

Show clearly all constructions.



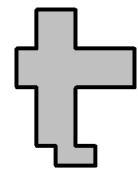
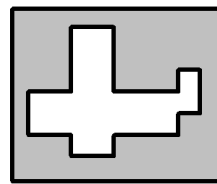
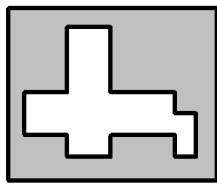
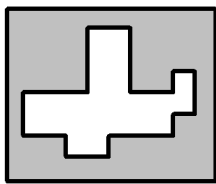
11. The figure below shows the elevation of an adjustable set-square. A 3D graphic is also shown.

Rotate **ABCD** about point **O** until point **C** reaches the line **LL₁**.

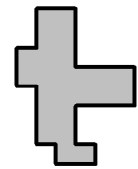


12. The graphic below shows three puzzles. The solution to each puzzle is shown on the right.

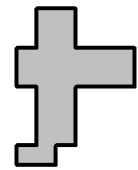
Match the correct letter with the appropriate puzzle below.



A



B



C

1. _____

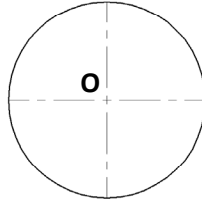
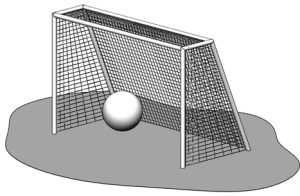
2. _____

3. _____

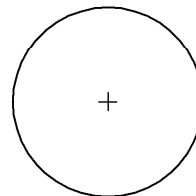
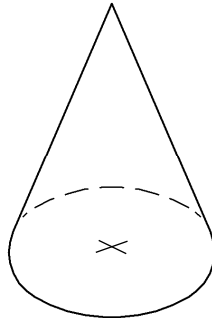
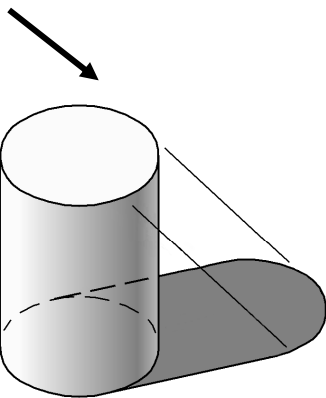
- 13.** The 3D graphic shows a football as it strikes the back of a goal net. Also shown is an end view of the goal net and a football **O**.

Draw the football in position when it strikes the back of the net and rests on the ground **GG₁**.

Show all constructions and points of contact.



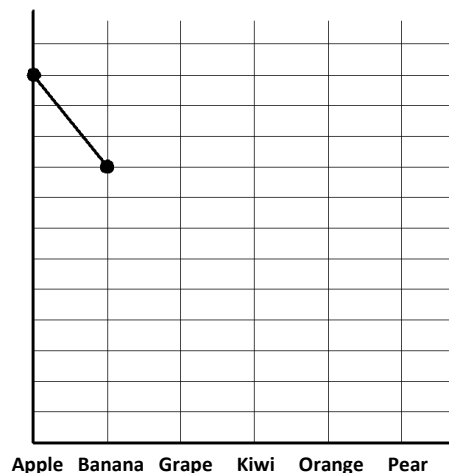
- 14.** The graphic shows three **solids**. Light is shining on the solids, as shown by the direction of the arrow. The shadow cast by the first solid has been completed. Draw **freehand sketches** of the shadows cast by the other two solids.



- 15.** The sale of fruit in a school canteen was recorded over the period of a week. The following are the results:

- Apple - 60
- Banana - 45
- Grape - 25
- Kiwi - 20
- Orange - 40
- Pear - 10

Complete the chart to represent this information graphically.



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