Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2013

Technical Graphics
Higher Level
Section A

(120 marks)

Monday, 17 June
Morning 9:30 - 12:30

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.*

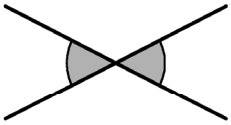
Question	Mark
Section A	
1	
2	
3	
4	
5	
6	
TOTAL	
GRADE	

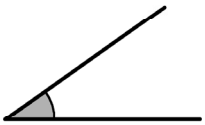
Examination Number:

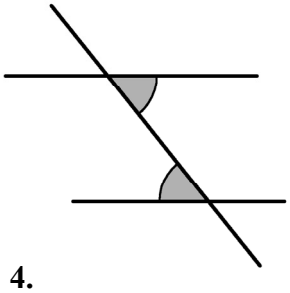
SECTION A. Answer **any ten** questions. All questions carry equal marks.

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

- Acute
- Alternate
- Perpendicular
- Opposite

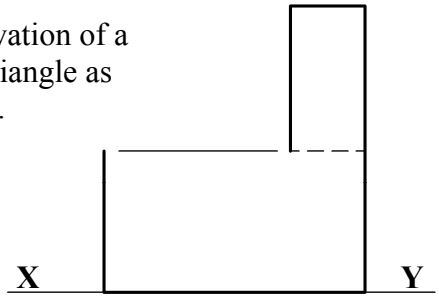


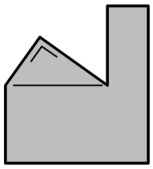


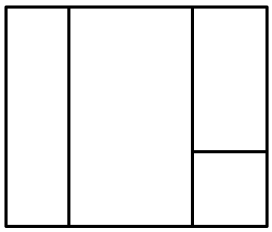


1._____ **2.**_____ **3.**_____ **4.**_____

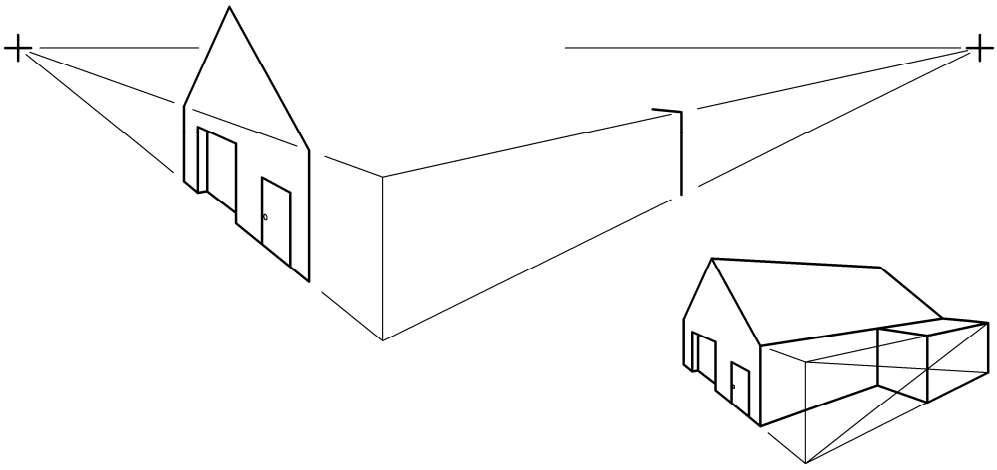
2. The figure shows the plan and incomplete elevation of a factory. The roof is based on a right-angled triangle as shown in the graphic. Complete the elevation.



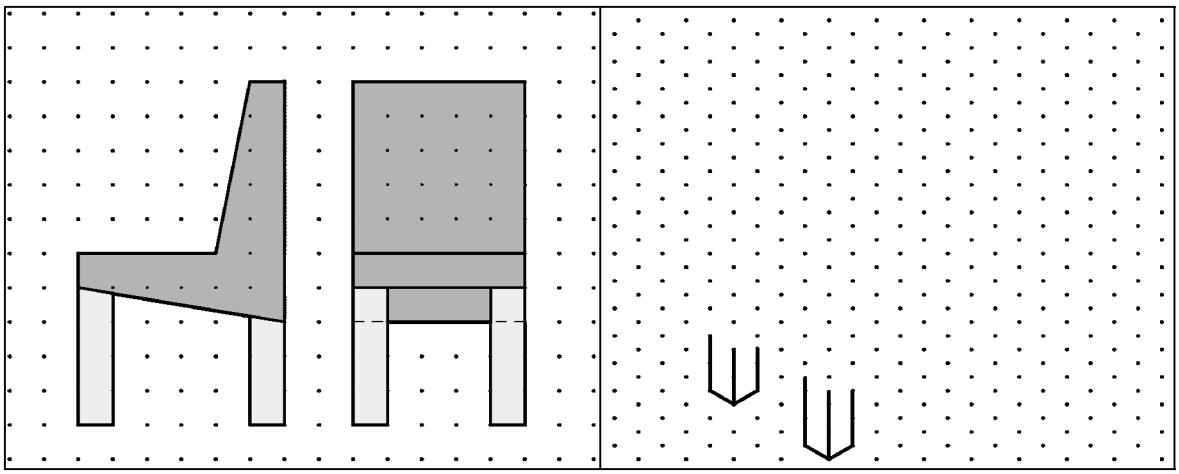




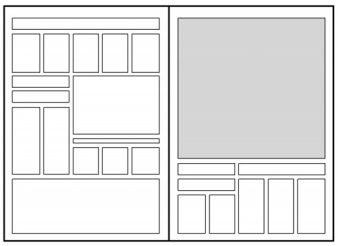
3. The figure shows the incomplete perspective drawing of a building. A 3D graphic is also shown. Complete the perspective drawing.



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



5. The graphic shows an advertisement on a newspaper page. **Fig. 1** shows a triangle that represents the area of the advertisement. Convert the triangle to a rectangle of equal area to show the final size of the advertisement.



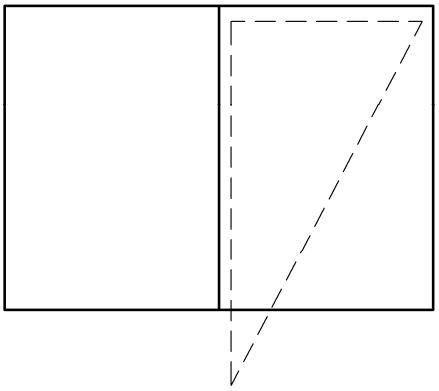
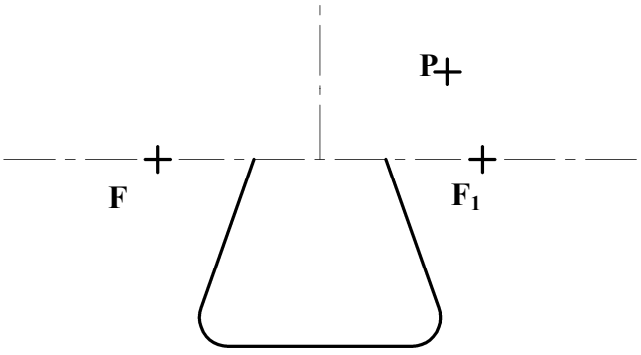


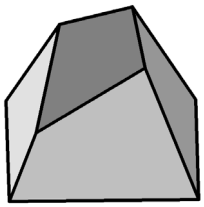
Fig. 1

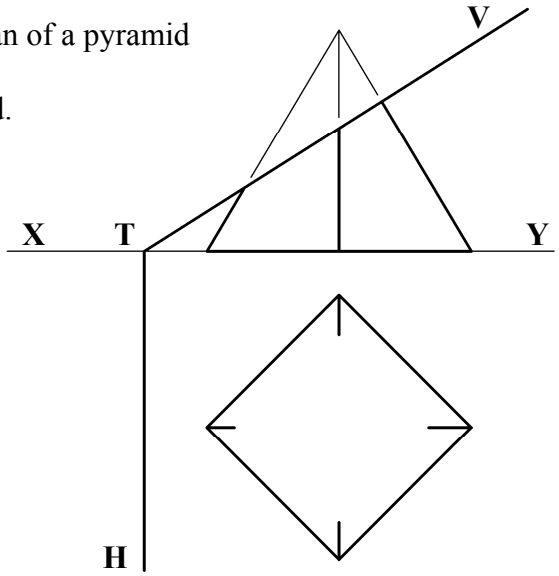
6. The 3D graphic shows a playground feature. The top of the feature is based on a semi-ellipse. The figure below shows the location of the axes and focal points of the semi-ellipse. The point **P** is a point on the curve.
Find the length of the major and minor axes and draw the semi-ellipse.



7. The figure shows the elevation and plan of a pyramid which is cut by the plane **VTH**.
The 3D graphic shows the cut pyramid.

Complete the plan of the cut pyramid.

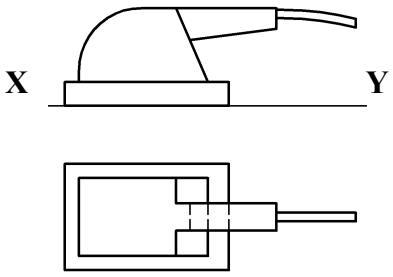




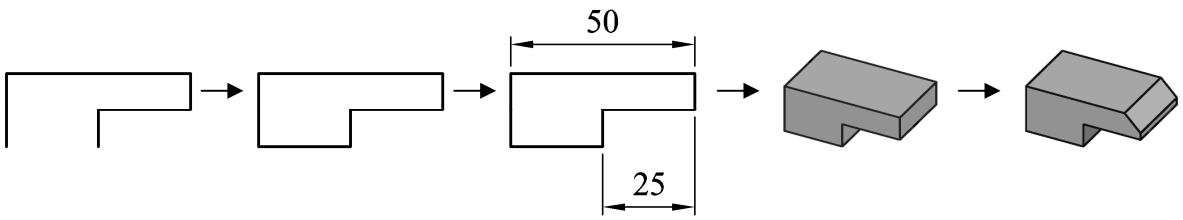
8. The elevation and plan of an orbital sander are shown.

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

Colour **or** shade the sketch.



9. Write down **any three** CAD commands used to edit the figure as shown in the sequence.

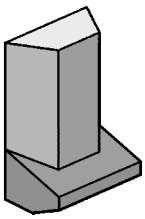


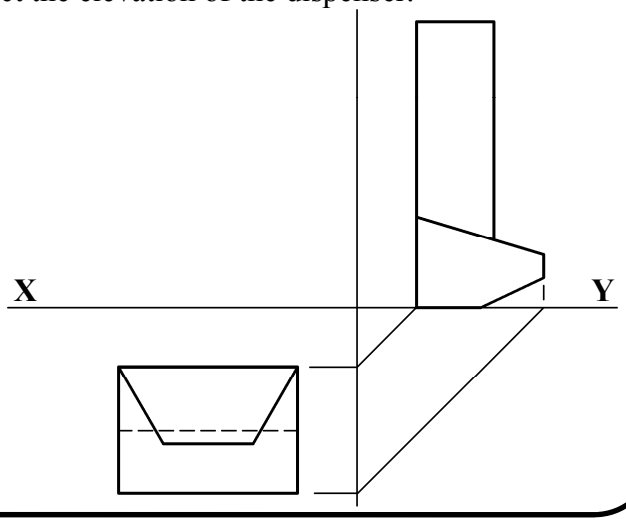
Any **three** CAD commands: _____

_____

_____

10. The figure shows the plan and end view of a soap dispenser. A 3D graphic of the dispenser is also shown. Project the elevation of the dispenser.



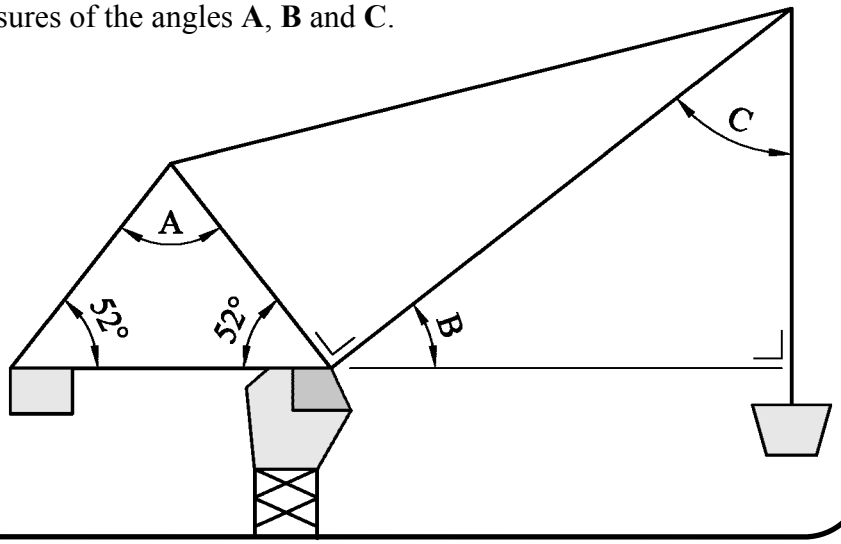


11. The figure shows a tower crane.
Write down the measures of the angles **A**, **B** and **C**.

A = _____

B = _____

C = _____



12. The graphic shows a logo based on a racing car. **Fig**. **1** shows the incomplete logo. Complete the logo by drawing a tangent between the wheels of the car. Show all construction and points of contact.

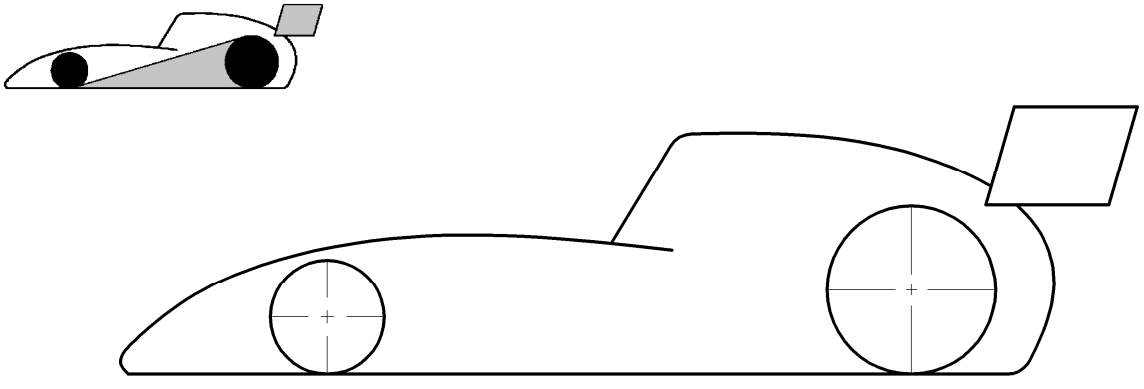
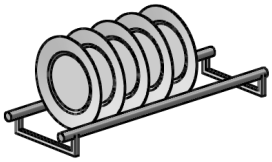
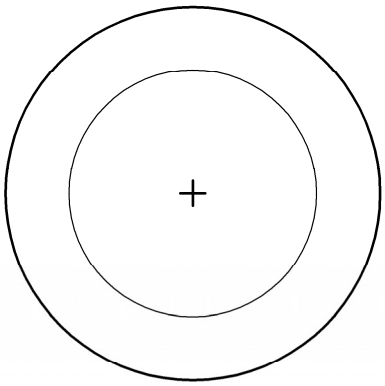
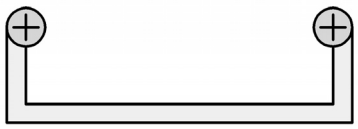


Fig. 1

13. The 3D graphic shows a plate rack. Also shown is an elevation of the plate rack and a plate. Draw the plate in position on the plate rack.
Show all construction and points of contact.

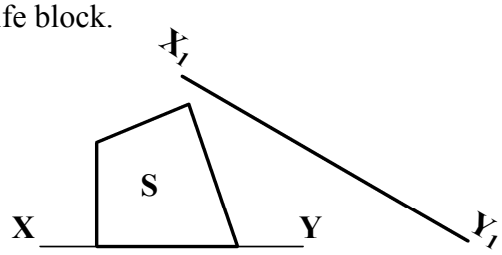


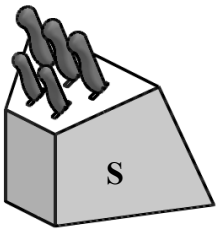


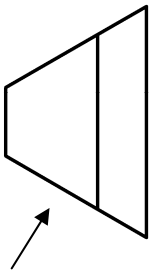


14. The figure shows the elevation and plan of a knife block.
A 3D graphic of the knife block is also shown.

Project an auxiliary elevation of the knife block on the line $\mathbf{X_1}$-$\mathbf{Y_1}$ to show the true shape of the surface **S**.



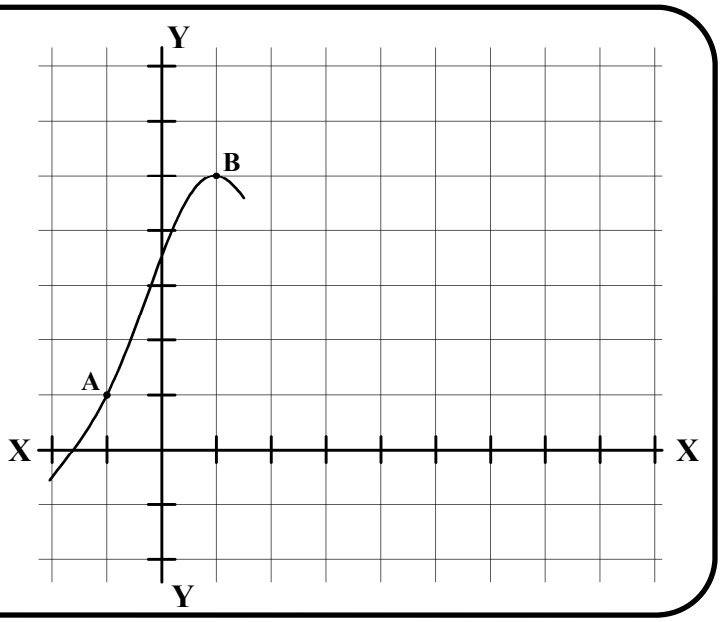




15. The **X** and **Y** axes shown are marked in single-unit intervals.

Complete the graph using the following coordinates:

A - (-1,1)
B - (1,5)
C - (3,2)
D - (5,0)
E - (6,1)
F - (8,6)



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