

Annual Examinations for Secondary Schools 2019

YEAR 10 **GRAPHICAL COMMUNICATION** **TIME: 2 hours**

Instructions

- Write your name and class on all sheets.
- Attempt ALL questions.
- All answers are to be drawn accurately with instruments, unless otherwise stated.
- All construction lines MUST be left on each solution to show the method employed.
- Drawing aids may be used.

Information

- All dimensions are in millimetres.
- Estimate any missing dimensions.
- Marks will be awarded for accuracy, clarity and appropriateness of construction.

This section is for teachers' use only.

Question	1	2	3	4	5	6	Total
Marks allotted	12	18	14	18	16	22	100
Marks awarded							

Question 1: Computer graphics.

You are required to draw an image using a computer graphics program which uses the instructions DATA, MOVE & DRAW to generate the image in the following way:

DATA: A = 50; B = 100; C = 150; D = 200; E = 250; F = 300; G = 350; H = 400;
I = 450; J = 500; K = 550; L = 600; M = 650; N = 700; O = 750; P = 800.

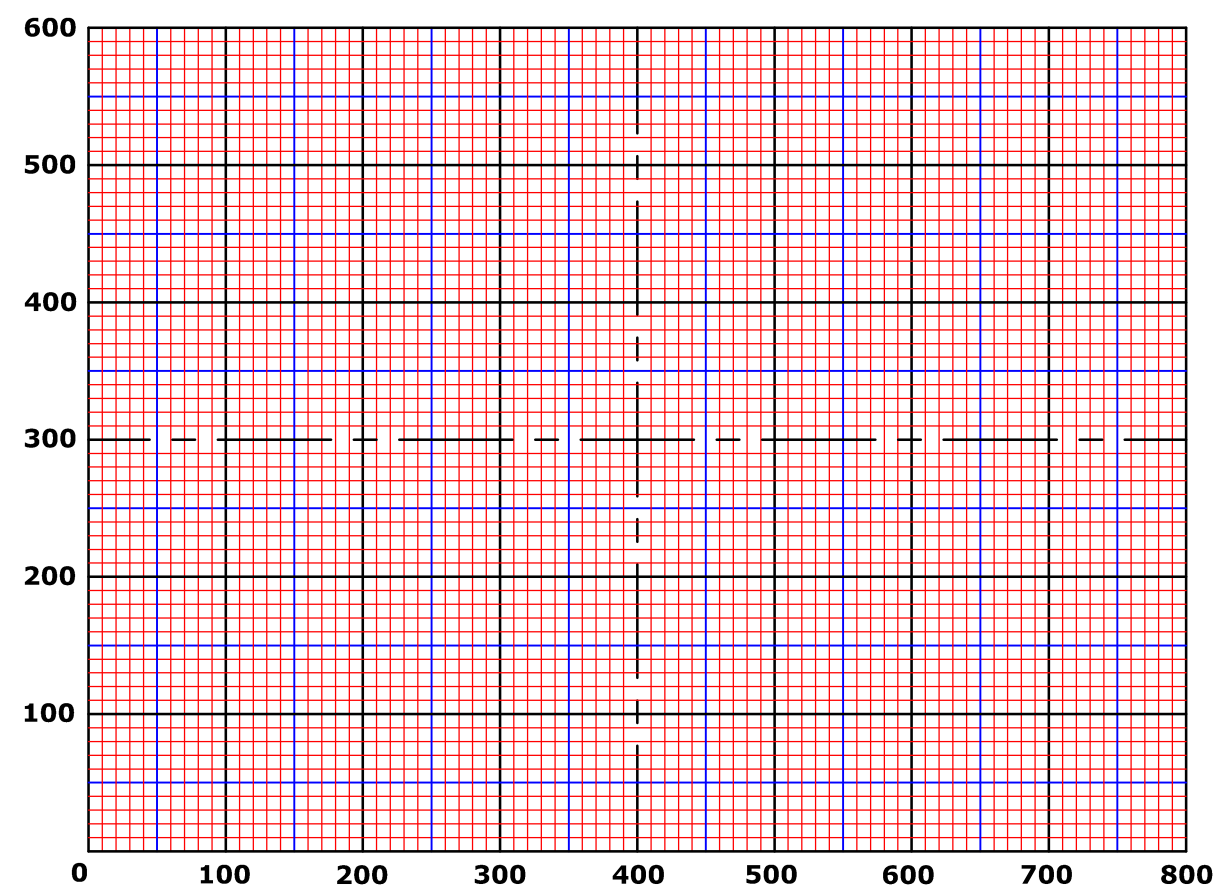
ACI 7: MOVE G,F; DRAW H,G;
ACI 5: MOVE D,F; DRAW F,G; DRAW D,J; DRAW G,H; DRAW H,J;
ACI 1: MOVE D,F; DRAW C,H; DRAW F,G;
ACI 1: MOVE G,H; DRAW F,K; DRAW H,J;
ACI 3: MOVE C,F; DRAW C,K; DRAW H,K.

MIRROR the plotted design, using the vertical and horizontal centre lines as the mirror lines (lines of symmetry).

The computer responds to the following commands:

Colour	(ACI)	Colour Index Number
1		Red
3		Green
5		Blue
7		Black

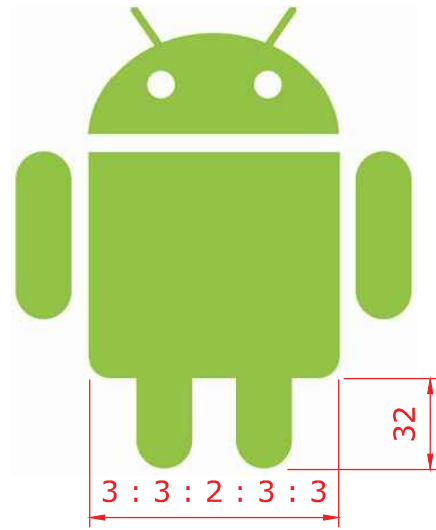
(12 marks)



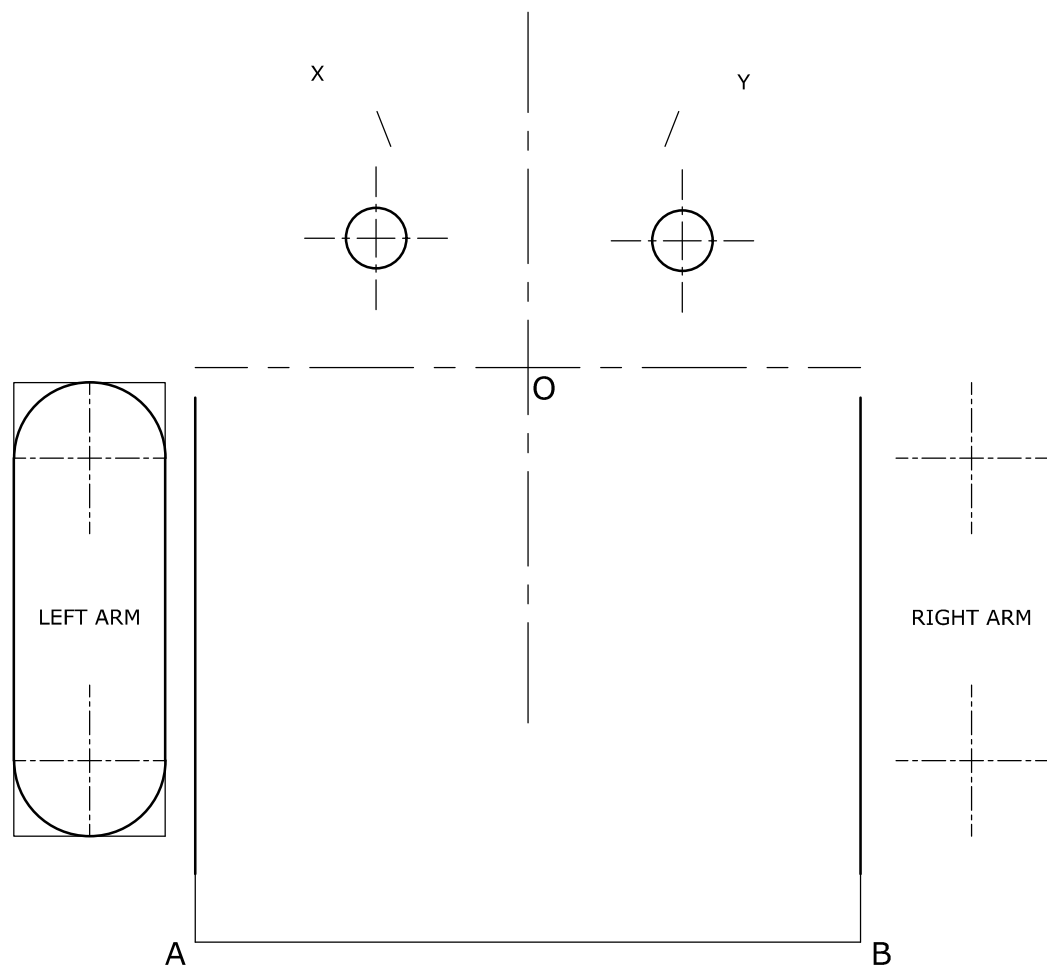
Question 2: Ellipse.

Construct the android logo shown on the right according to the dimensions and instructions given below:

1. mirror and construct the right arm of the Android logo;
2. divide line AB into the ratio of 3:3:2:3:3 and draw the legs 32mm long;
3. construct a semi-ellipse having major axis 88 mm and minor axis 70 mm on center O;
4. construct a normal to the ellipse at point X and reflect the normal at point Y;
5. draw a fillet R9 at A and reflect at B;
6. complete the antennas using dimensions of your choice.



(18 marks)



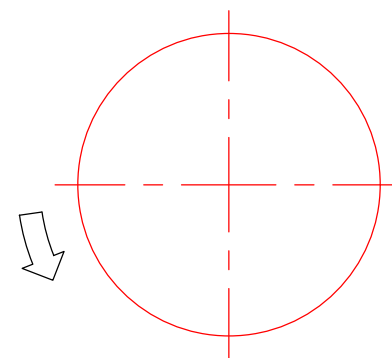
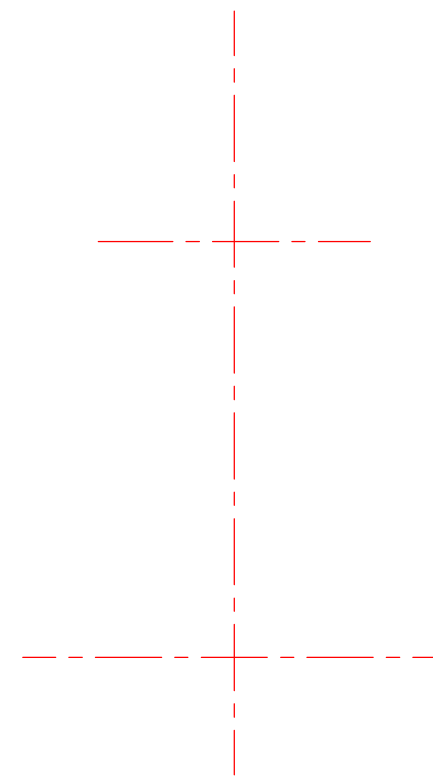
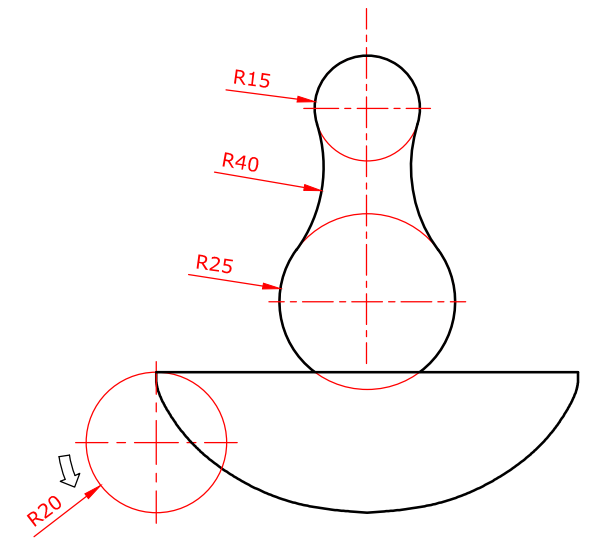
Question 3: Circles in contact and Cycloid.

The drawing shows the profile of an ink absorber for fountain pens.

Construct the profile by:

1. drawing the R15mm and R25mm circles;
2. find the centre of the R40mm by construction and draw the arc touching the two circles;
3. constructing the cycloid using the R20 circle.

(14 marks)



Question 4: Logo design.

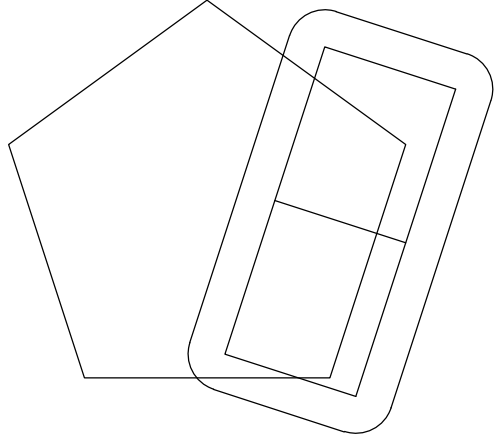
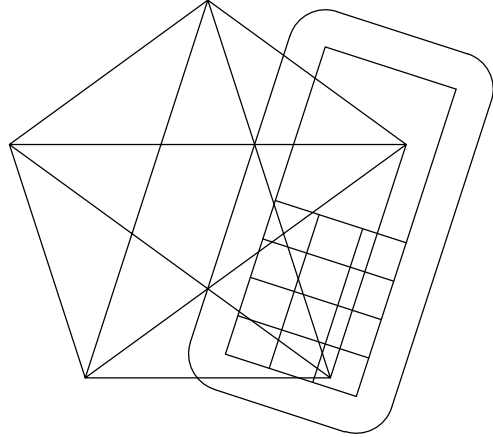
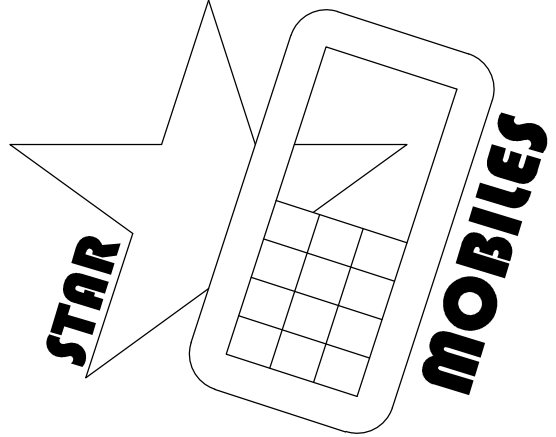
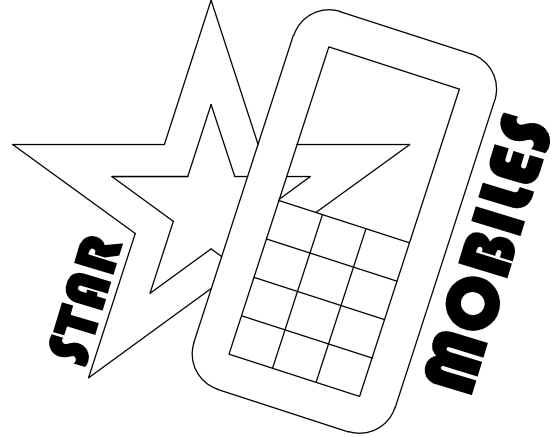
The four drawings featured in Row 1 show the progression of a logo design for a mobile phone company. This company has to change its name from 'Star Mobiles' to 'Planet Mobiles' and needs a new Logo.

- a) Draw **two** freehand sketches for the new logo in the space provided.
- b) Using instruments, develop your idea in four steps in Row 2.
- c) Colour your final Logo.

(18 marks)

Space for freehand sketching

ROW 1

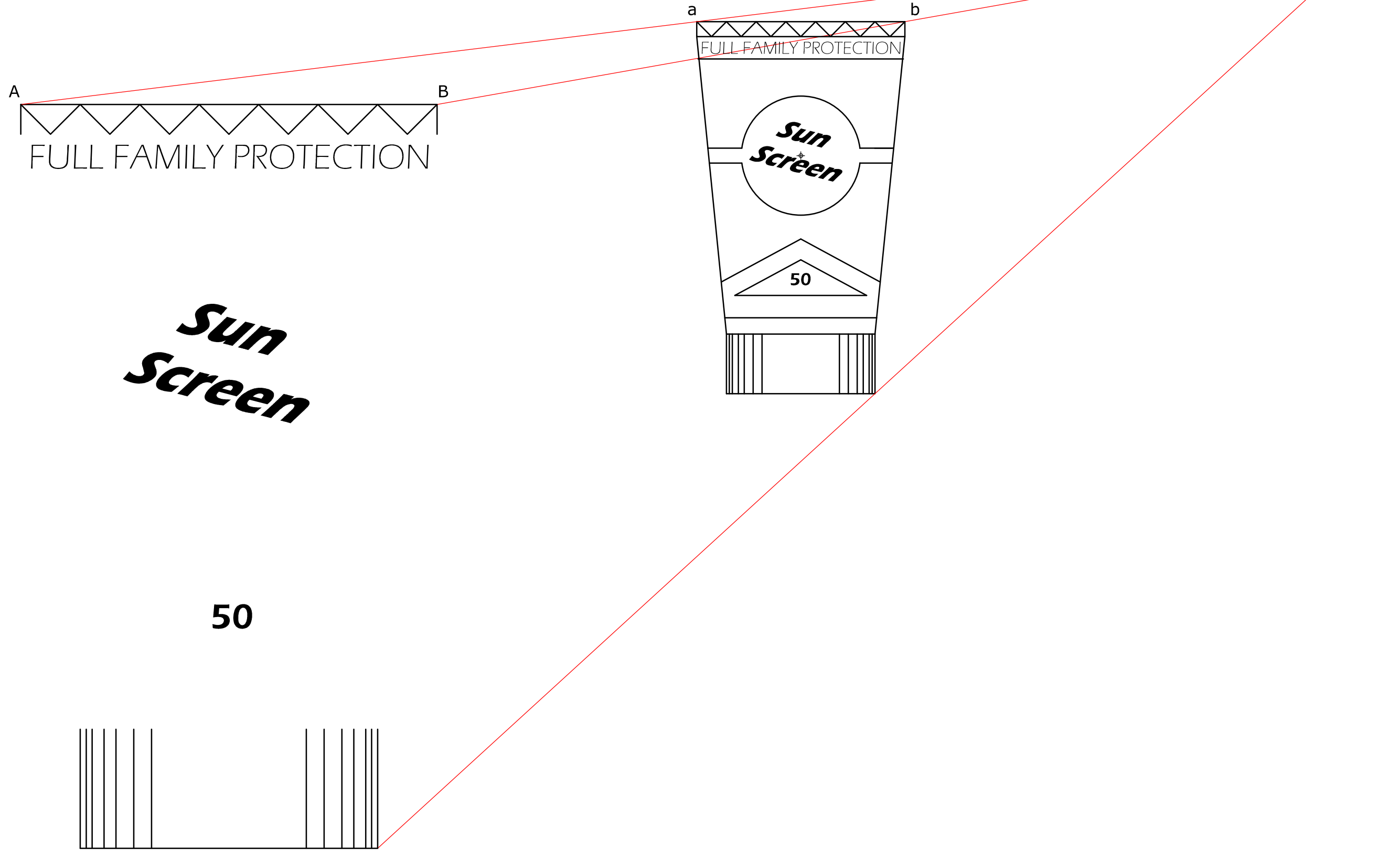
			
STEP 1	STEP 2	STEP 3	FINAL LOGO
ROW 2			

Question 5: Polar enlargement.

A good sunscreen lotion is an essential item at the beach.

Enlarge the sun screen bottle shown below so that line a-b becomes line A-B.

(16 marks)

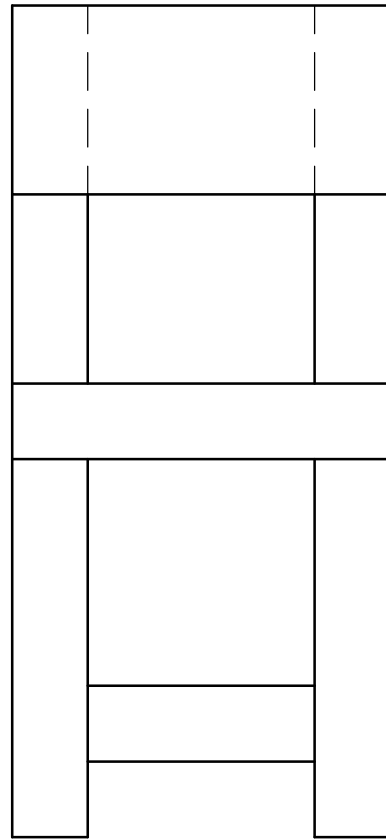


Question 6: Orthographic and Planometric.

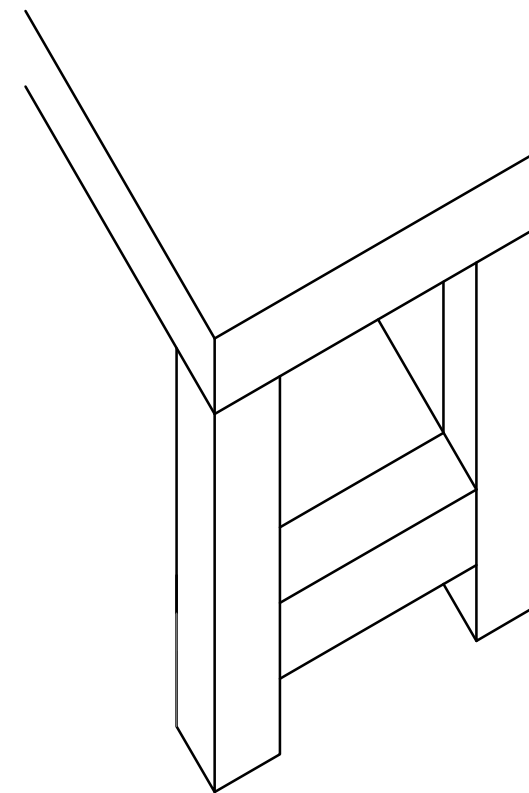
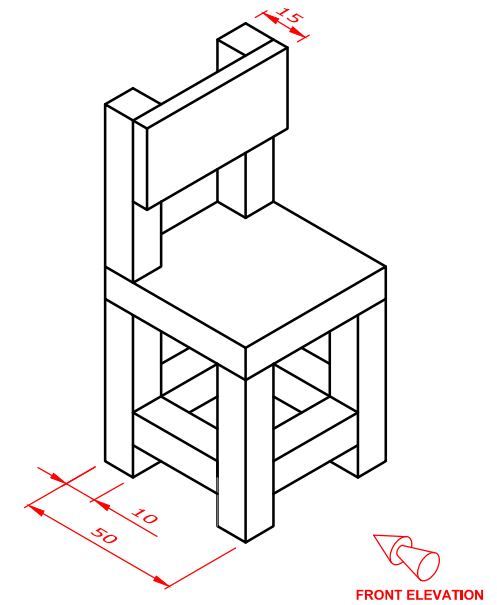
An **isometric** drawing, a **front** elevation, and an incomplete **planometric** projection of a wooden toy chair for a doll's house are given.

1. Complete the 1st angle orthographic projection by adding the **END** elevation and **PLAN** respectively.
2. Use simple block lettering to label the views.
3. Complete the **PLANOMETRIC** projection of the chair.
4. Draw the symbol for 1st angle orthographic projection.

(22 marks)



FRONT



SYMBOL