



education

Department of
Education
FREE STATE PROVINCE

PROVINCIAL PAPER

GRADE 10

ENGINEERING GRAPHICS AND DESIGN P2

NOVEMBER 2018

MARKS: 100
TIME: 2 HOURS

This paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

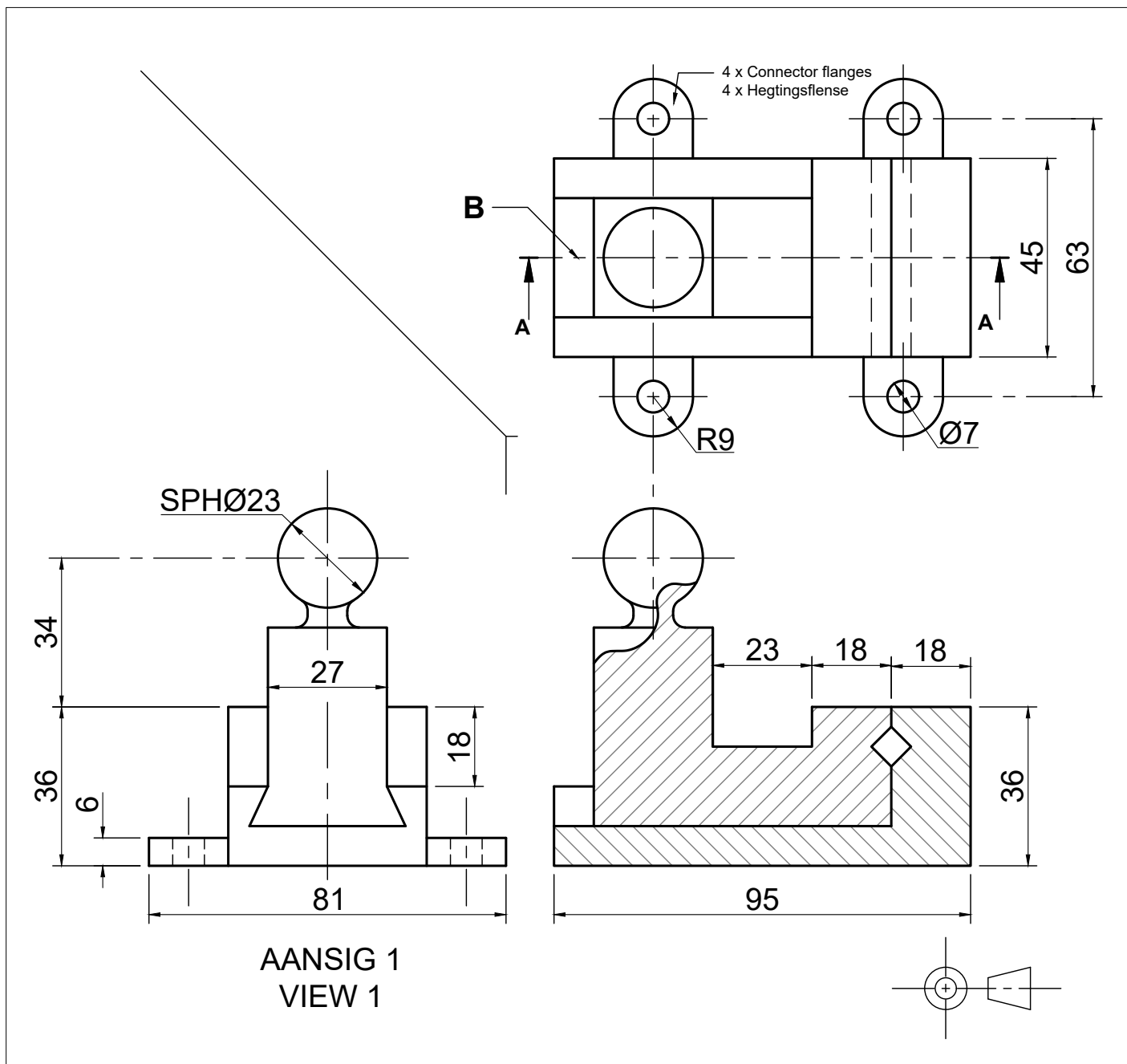
1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. ALL drawings are in third-angle orthographic projection, unless stated otherwise.
4. ALL drawings must be drawn to scale 1:1, unless stated otherwise.
5. ALL questions must be answered on the DIAGRAM SHEETS, as instructed.
6. ALL the pages must be restapled in numerical sequence, irrespective of whether the question was attempted or not.
7. Time management is essential in order to complete all the questions.
8. Print your name and surname as well as the grade in the space provided on each page.
9. ALL answers must be drawn accurately and neatly.
10. ALL necessary construction and projection lines must be shown.
11. Plan each drawing carefully from the given position, which is indicated on the diagram sheets.
12. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY								
QUESTION	MARKS OBTAINED			½	MODERATED			½
1								
2								
3								
4								
TOTAL								
	1	0	0		1	0	0	

FINAL CONVERTED MARK	CHECKED BY
100	

NAME & SURNAME	MEMORANDUM	GRADE	10	1
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STAPEL



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:

The working drawing of a clamp device in third-angle orthographic projection, a title block and a table of questions.

Instructions:

With a pencil, complete the table by neatly print the correct answers in the corresponding answer column. All the questions refer to the accompanying drawings and the title block on diagram sheet 1. **[20]**

QUESTIONS		ANSWERS		
1	On which date was this drawing approved?	2018/05/10	1	✓1
2	Who designed the clamp device?	STEM Engineering works	1	✓1
3	What treatment process must be applied on the clamp device?	Chrome plating	1	✓1
4	What is the name of the drawing file?	LMG 7.62 MM	1	✓1
5	How many clamp devices should be manufactured?	100	1	✓1
6	What is VIEW 1 called?	LEFT VIEW	1	✓1
7	What is the size of the sphere shaped handle?	SPH Ø 23	1	✓1
8	What is the dimension height of the connector flanges at view 1?	6 mm	1	✓1
9	What is the purpose of the line indicated at B?	Section line on AA/Symmetry	1	✓1
10	What size of bolts is needed to secure the clamp device to a work surface?	M7	1	✓1
11	What is the total width of the clamp device?	81 mm	1	✓1
12	Who drew the drawing?	R Sechaba	1	✓1
13	What material is used to manufacture the clamp device?	Cast iron	1	✓1
14	On what date was the drawing drawn?	2017/06/22	1	✓1
15	How many parts make up the clamp device?	2	1	✓1
16	What is the maximum jaw slide distance of the clamp device?	50 mm	1	✓1
17	What scale is indicated for the drawing?	SCALE 1:1	1	✓1
18	What drawing program was used to draw the drawing?	AUTOCAD 2016	1	✓1
19	Which manufacturing company will manufacture the clamp device?	CAST WORLD	1	✓1
20	Which SI measuring unit is used for all dimensions on this drawing?	Millimetres	1	✓1
TOTAL			20	

FILE NAME: LMG 7.62 MM	MATERIAL: CAST IRON	ALL DIMENSIONS ARE IN MILLIMETERS	
DRAWING NUMBER: 101	FINISHING: CHROME PLATING	DRAWN BY: R SECHABA	2017/06/22
CLAMP DEVICE DUP CONTRACTORS 17 VERRE WAY SENEKAL	DRAWING PROGRAM: AUTOCAD 2016 Scale 1:1	CHECKED: J TSEPANG	2017/07/25
	ALL UNSPECIFIED RADII ARE R3.	APPROVED BY: DJ SMALL	2018/05/10
Design by: STEM ENGINEERING WORKS	Manufacturer: CAST WORLD		
TITEL: CLAMP DEVICE	Contact detail: 33 Kolbe Avenue Prieska 1039 www.zuis.co.za. Contact Number: 089 000 2598	Manufacture 100 Clamp Devices	

NOTES:
Use a M7 size bolt to join the 4 connector flanges of the clamp device to a work surface.
Maximum jaw slide distance of clamp device: 50mm.



QUESTION 2 : GEOMETRICAL CONSTRUCTION

Given:

- A casting with all the necessary dimension.
- The position of A, B, C & D for the ellipse.
- Some of the center lines.

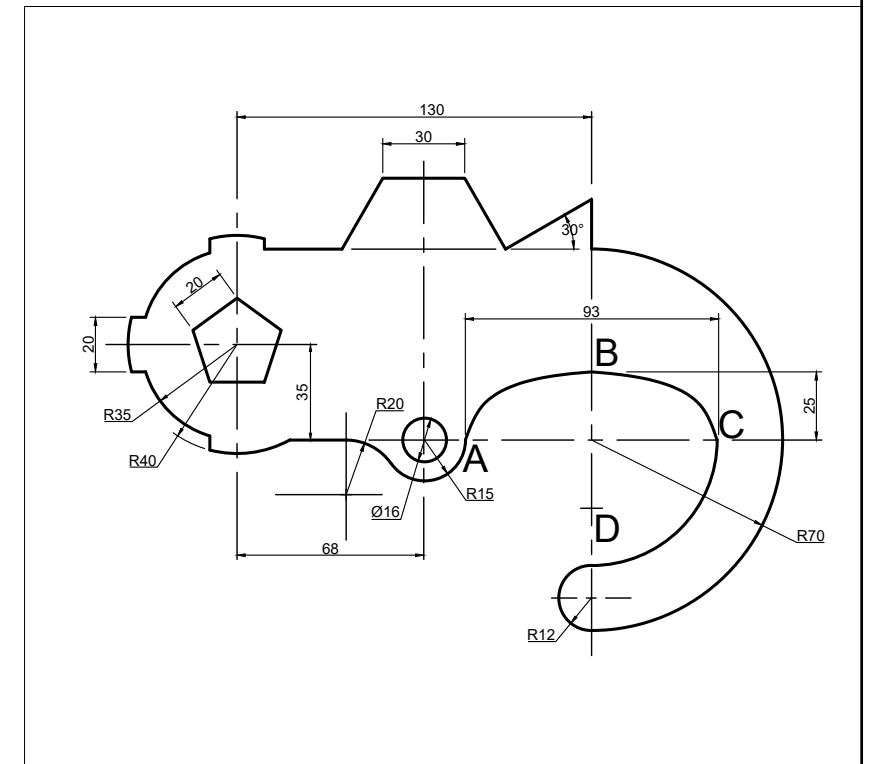
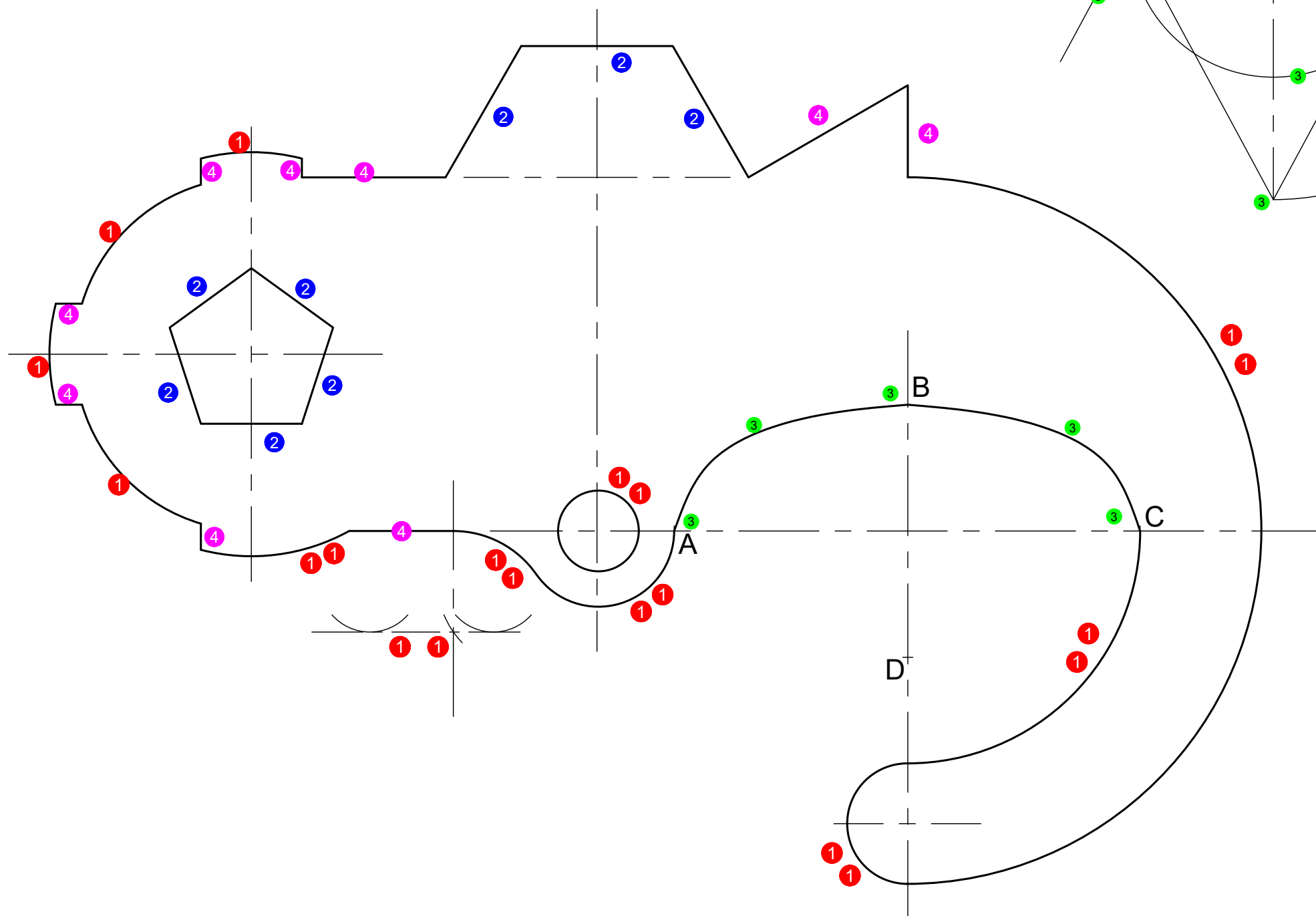
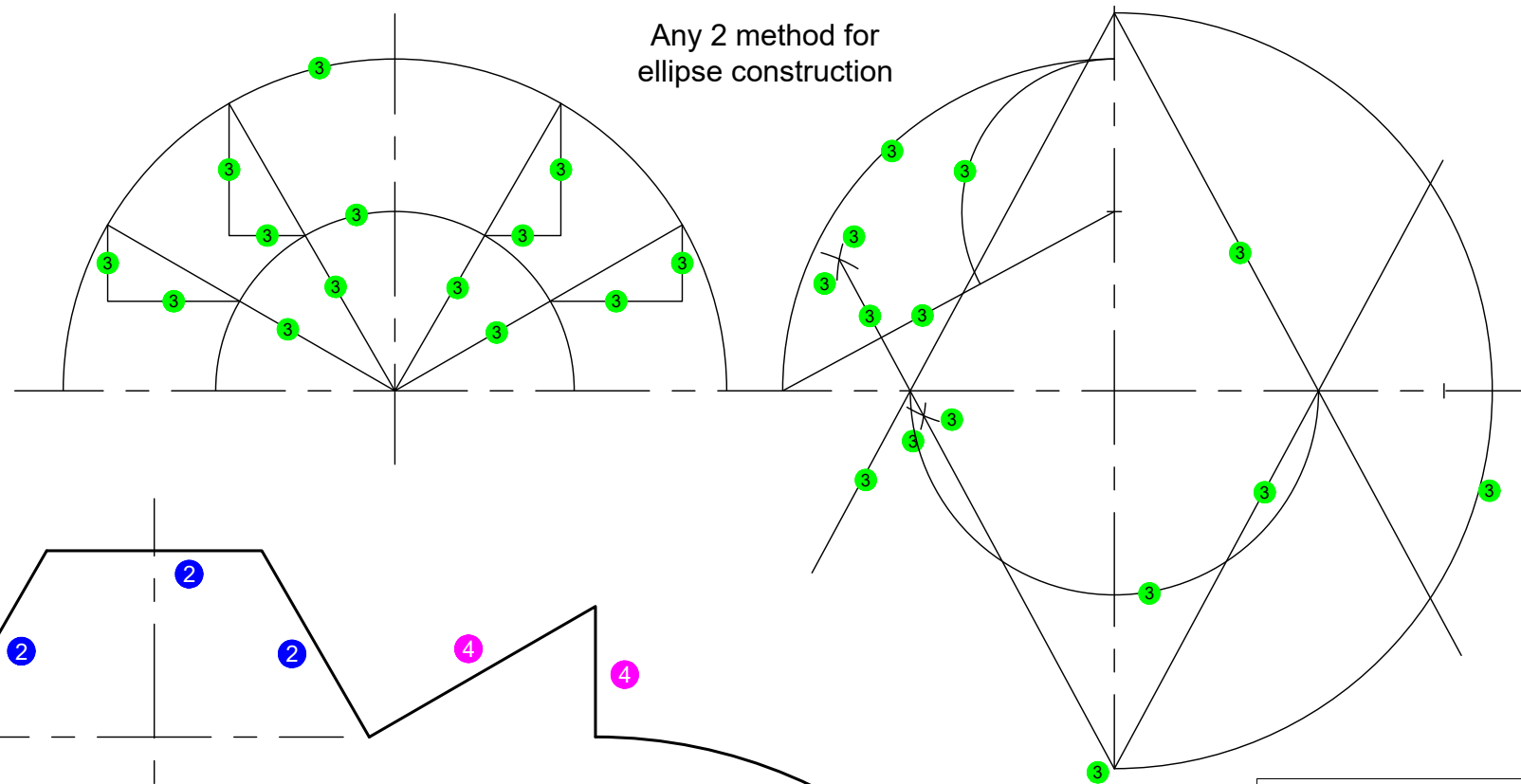
Instructions:

Copy the given view to scale 1:1.

Note:

ALL construction must be shown for maximum marks.

Any 2 method for ellipse construction



ASSESSMENT CRITERIA			
1	CIRCLES ($\frac{20}{2}$)	10	
2	POLYGONS ($\frac{5}{2}$)	4	
3	ELLIPSE ($\frac{19}{2}$)	9.5	
4	LINES ($\frac{9}{2}$)	4.5	
TOTAL		28	

STAPEL

QUESTION 3: ISOMETRIC DRAWING

AUXILIARY VIEW

Given:

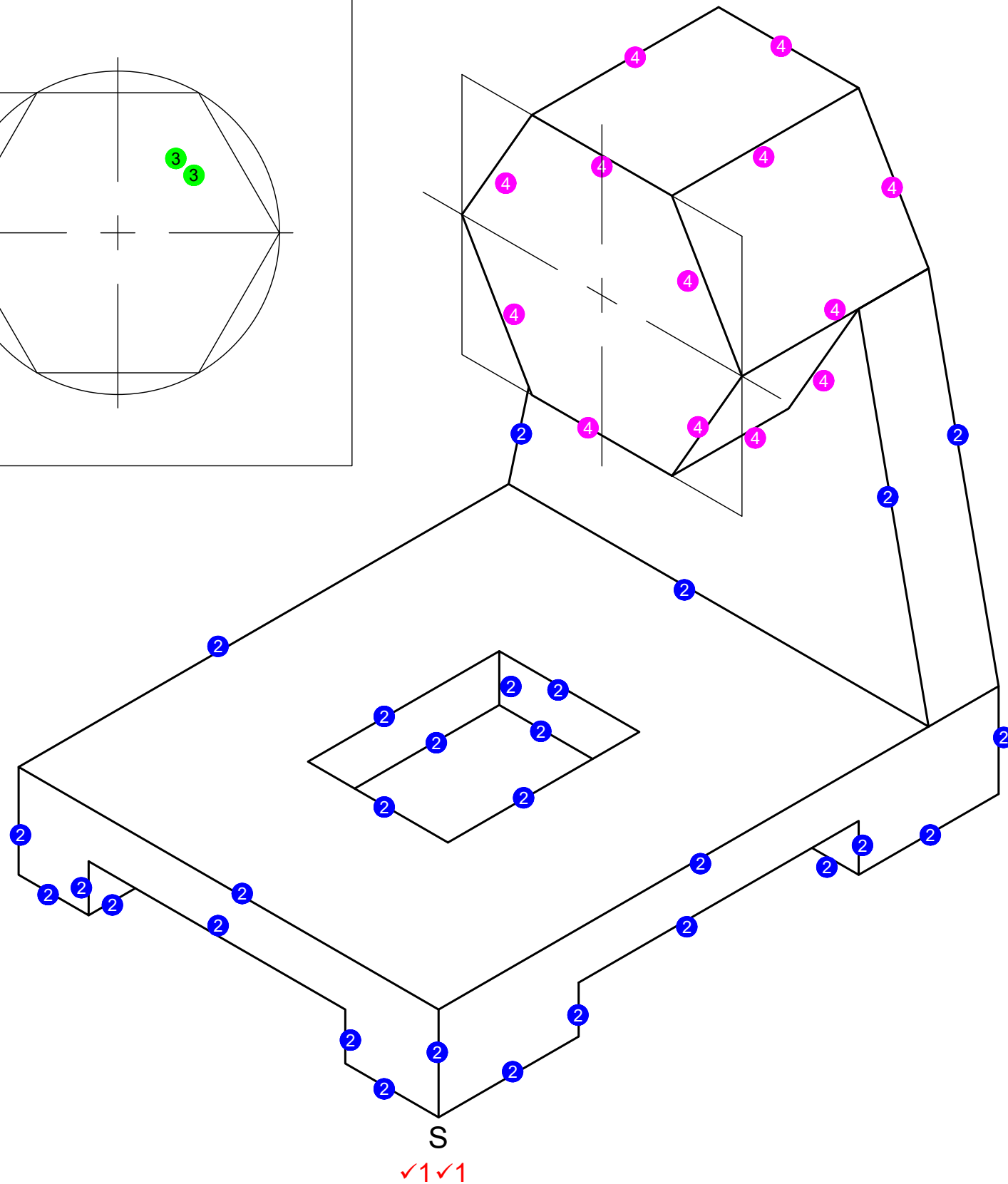
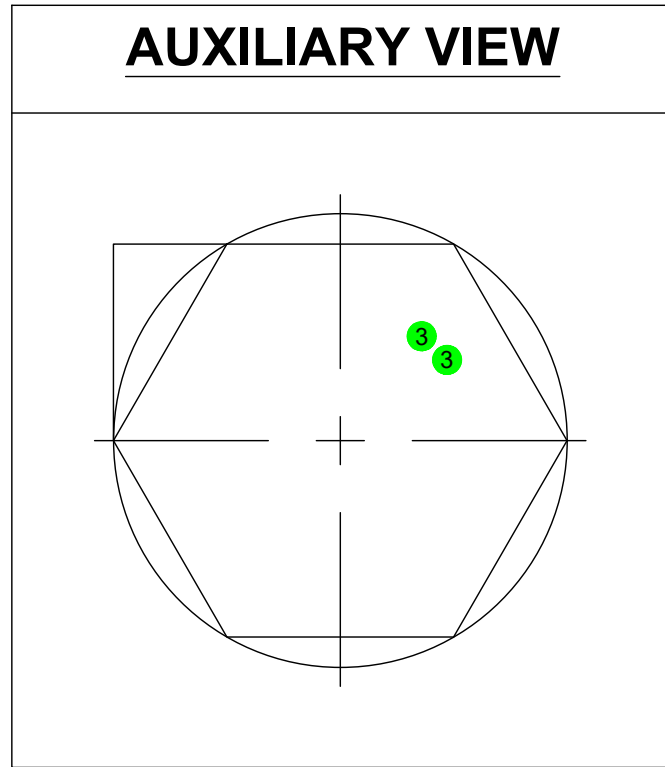
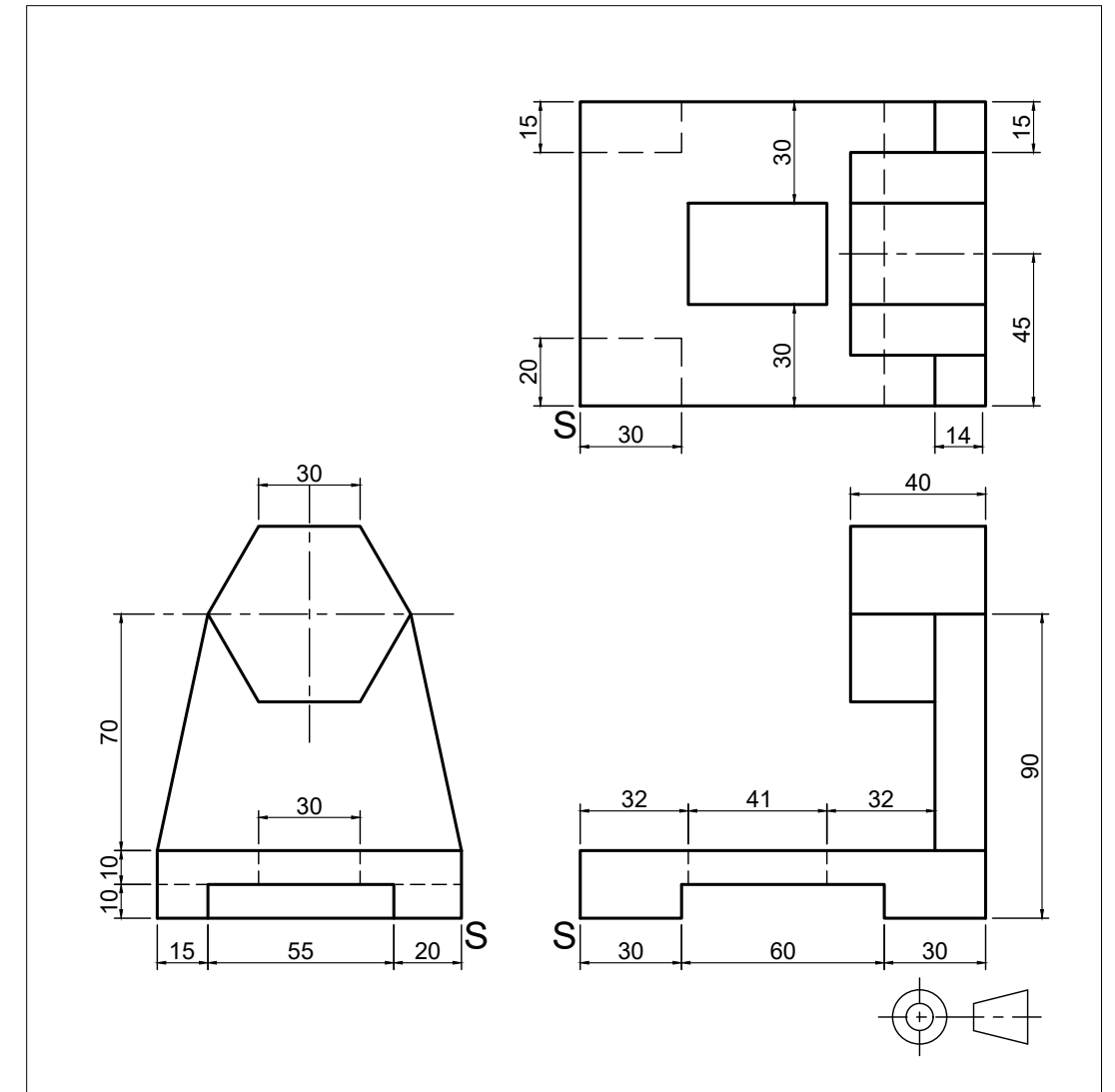
- The front view, top view and left view of a casting.
- The position of point S on the diagram sheet 3 (page 4).

Instructions:

Use a scale of 1:1 and convert the orthographic view of the casting into an isometric drawing.

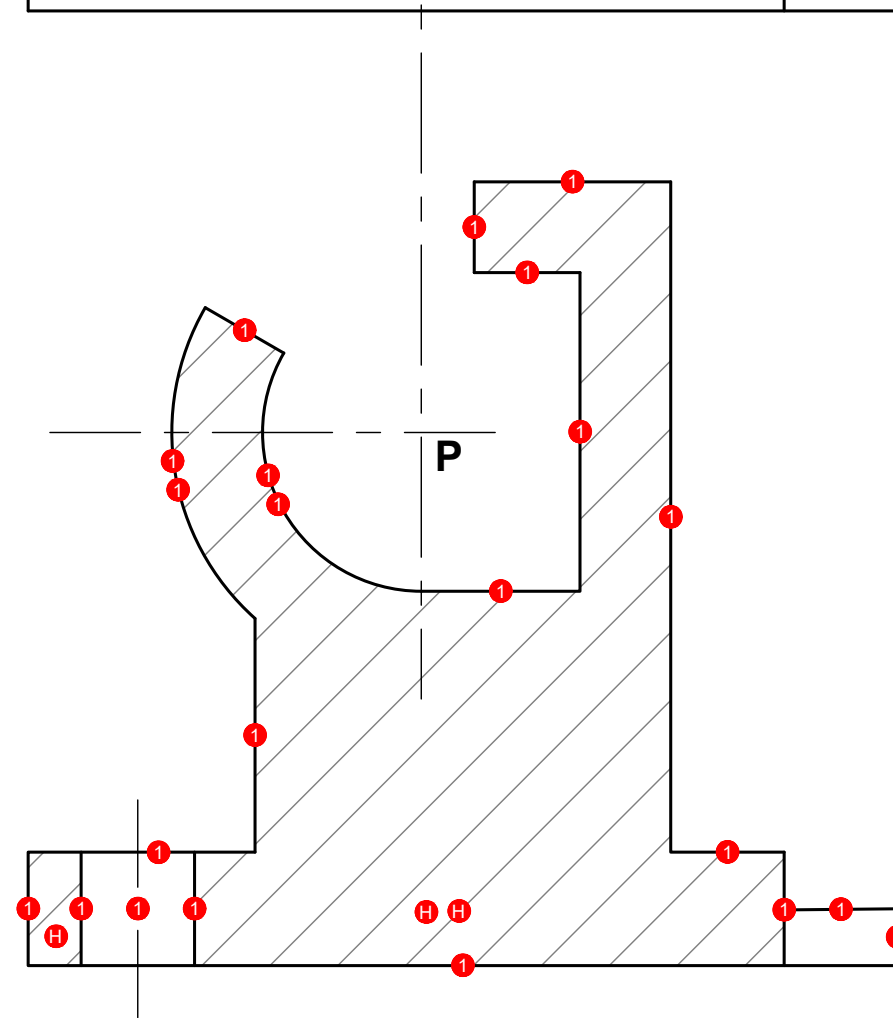
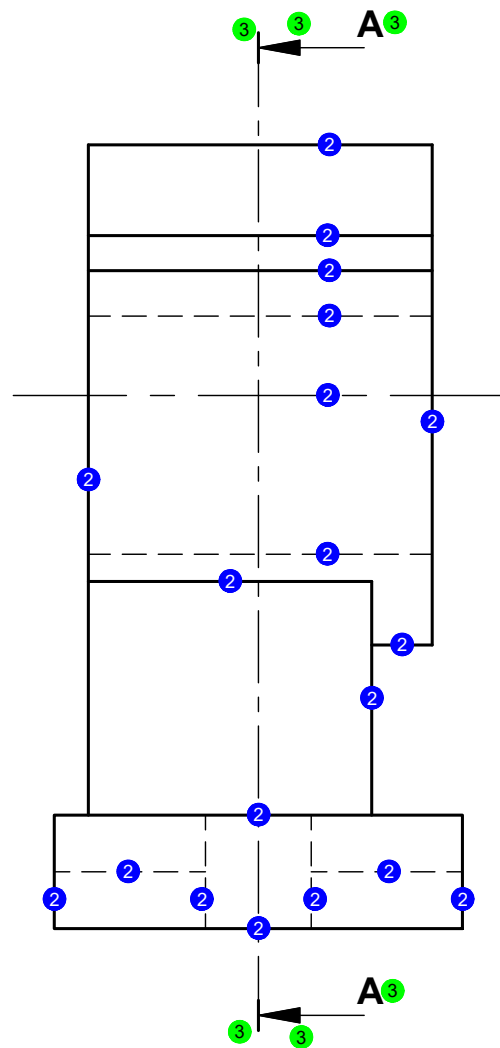
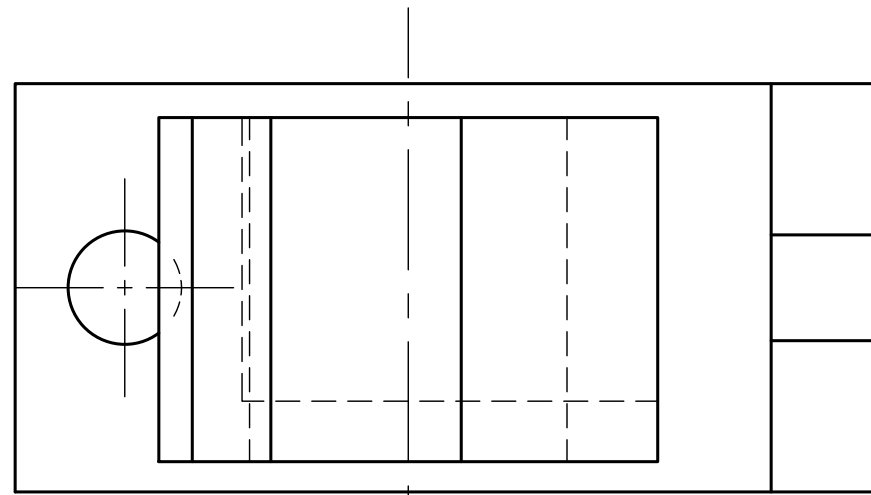
- Make S the lowest point of the drawing.
- Show ALL necessary construction lines
- Show ALL necessary auxiliary views.
- NO hidden detail is required.

[24]



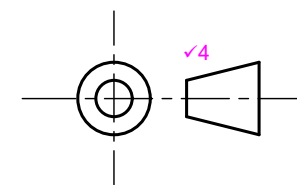
ASSESSMENT CRITERIA			
1	PLACEMENT	2	
2	ISO- + NON ISOMETRIC LINES ($\frac{19}{2}$)	14.5	
3	AUXILIARY VIEW ($\frac{6}{2}$)	1	
4	HEXAGON ($\frac{13}{2}$)	6.5	
TOTAL		24	

STAPEL



TITLE & SCALE
 KLAMP ✓5
 SKAAL 1:1 ✓5

PROJECTION SYMBOL



ASSESSMENT CRITERIA			
1	SECTIONAL FRONT VIEW ($\frac{25}{2}$)	12.5	
2	LEFT VIEW ($\frac{19}{2}$)	9.5	
3	SECTION LINE AA ($\frac{6}{2}$)	3	
4	PROJECTION SYMBOL	1	
5	TITLE & SCALE	2	
TOTAL		28	