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basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL
SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1

NOVEMBER 2019

MARKS: 100

TIME: 3 hours

This question paper consists of 6 pages.

Barcode label



INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. ALL drawings are in first-angle orthographic projection, unless otherwise stated.
4. ALL drawings must be prepared using pencil and instruments, unless otherwise stated.
5. ALL answers must be drawn accurately and neatly.
6. ALL the questions must be answered on the QUESTION PAPER, as instructed.
7. ALL the pages, irrespective of whether the question was attempted or not, must be re-stapled in numerical sequence in the TOP LEFT-HAND CORNER ONLY.
8. Time management is essential in order to complete all the questions.
9. Print your examination number in the block provided on every page.
10. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY											
QUESTION	MARKS OBTAINED			$\frac{1}{2}$	SIGN	MODERATED			$\frac{1}{2}$	SIGN	RE-MARKING
1											
2											
3											
4											
TOTAL											
	2	0	0			2	0	0			2 0 0

FINAL CONVERTED MARK

100

CHECKED BY

COMPLETE THE FOLLOWING:

CENTRE NUMBER

CENTRE NUMBER

EXAMINATION NUMBER

EXAMINATION NUMBER

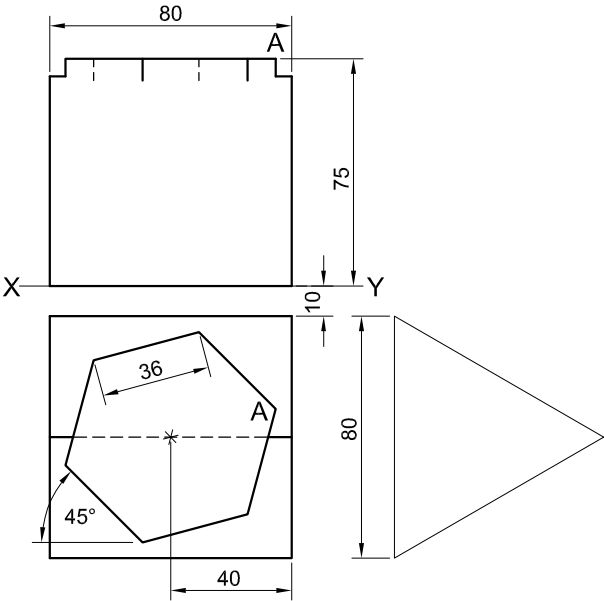


QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- Given:**
- The top view and incomplete front view of a right regular hexagonal prism that has been shaped to fit over an equilateral triangular prism. The axes of both solids lie in a common vertical plane.
 - An auxiliary view of the triangular prism

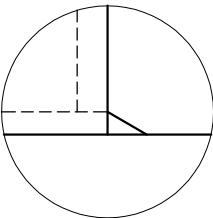
- Instructions:**
- Draw, to scale 1 : 1, the following views of the TWO solids:
- 2.1 The given top view
 - 2.2 The right view
 - 2.3 The complete front view, clearly showing the curve of interpenetration
 - 2.4 The development of the surface of the hexagonal prism. Make edge 'A' the seam.

- Planning is essential.
 - Show ALL hidden detail.
 - Show ALL construction.
- [37]



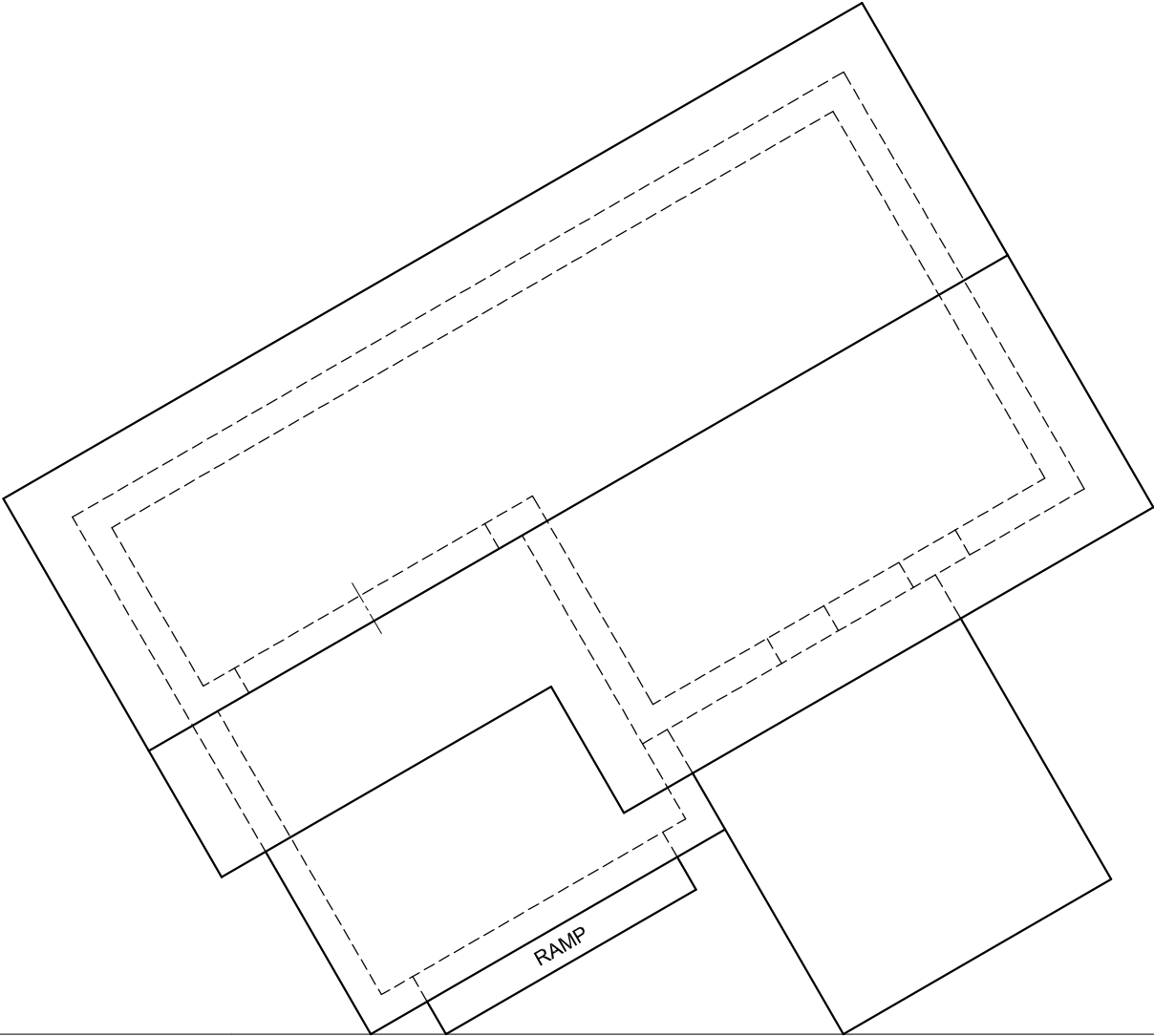
EDGE 'A' IS THE SEAM

ASSESSMENT CRITERIA					
1	TOP VIEW	7 ¹ / ₂			
2	RIGHT VIEW	5			
3	FRONT VIEW	13			
4	DEVELOPMENT	11 ¹ / ₂			
PENALTIES (-)					
TOTAL		37			
EXAMINATION NUMBER					
EXAMINATION NUMBER					3



DETAIL OF RAMP

PP



QUESTION 3: PERSPECTIVE

Given:
Two views of a house with a pitched roof, the detail of the ramp and the information needed to draw a two-point perspective drawing
PP – Picture plane
HL – Horizon line
GL – Ground line
SP – Station point

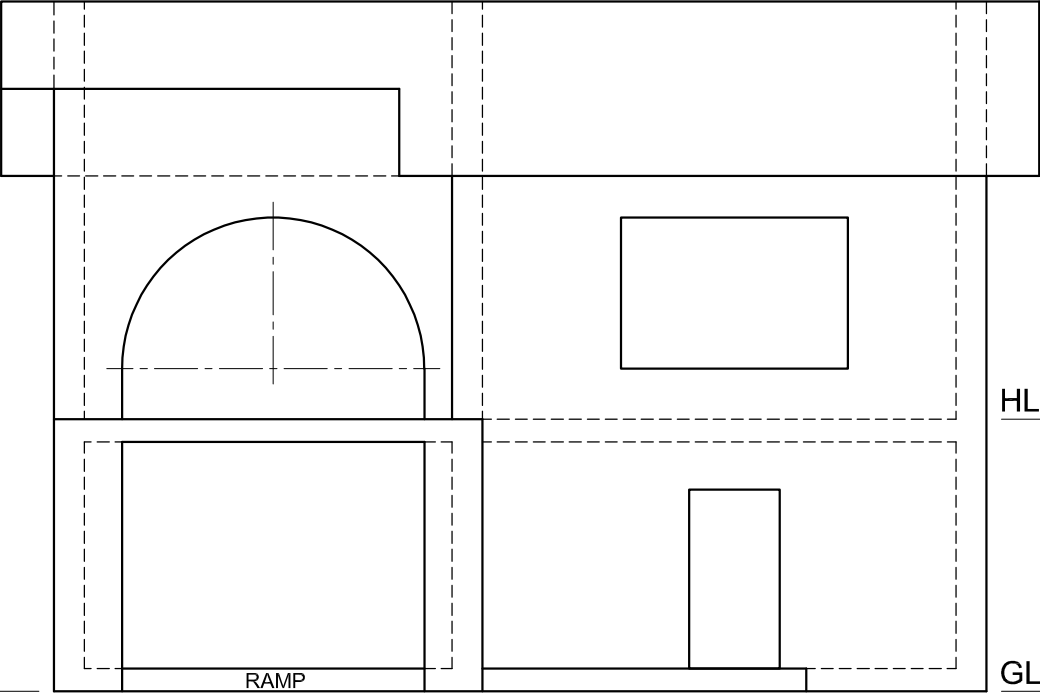
- Instructions:**
Complete the perspective drawing.
- Align the drawing sheet with the ground line (GL).
 - Determine and label the vanishing points.
 - Show ALL construction.
 - NO interior detail is required.
 - NO hidden detail is required.
- [39]

ASSESSMENT CRITERIA					
1	CONSTRUCTION	6			
2	WALLS	13			
3	DOORS + WINDOWS	8 ¹ / ₂			
4	ROOF	4 ¹ / ₂			
5	ARCS	7			
PENALTIES (-)					
TOTAL		39			

HL

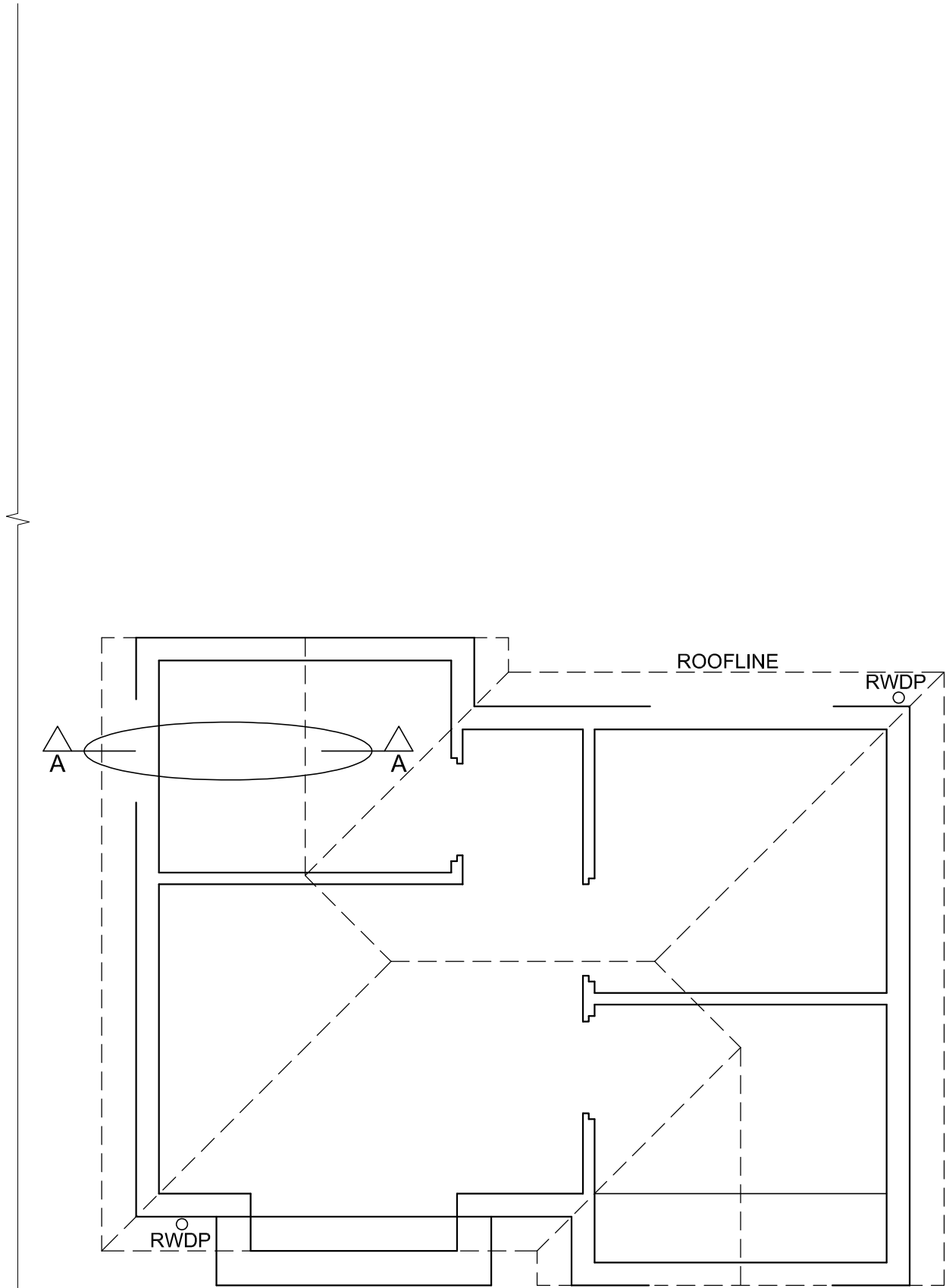
GL

SP



HL

GL



DETAILED SECTION A-A
SCALE 1 : 20

FLOOR PLAN
SCALE 1 : 50

MARK ALLOCATION FOR SECTION OF ROOF		FOR OFFICIAL USE ONLY	
A (2)		INCORRECT SCALE(S) USED	
B (1)		NON-ALIGNMENT OF VIEWS	
C (1)		VIEW(S) ROTATED	
D (2)		SECTION VIEWED INCORRECTLY	
E (6)		INCORRECT LETTERING	
F (2)			
G (1)			
H (1)			
I (1)			
TOTAL		TOTAL	

ASSESSMENT CRITERIA					
FLOOR PLAN					
		POSSIBLE	OBTAINED	SIGN	MODERATED
1	DOORS + WINDOWS	11			
2	FIXTURES	7			
3	ELECTRICAL	10			
4	HATCHING	3			
5	LABELS	4			
SUBTOTAL		35			
NORTH ELEVATION					
1	ROOF + RWDP	10 ½			
2	WALLS + STEP + FFL	6			
3	DOOR + WINDOW	7			
4	LABELS	1 ½			
SUBTOTAL		25			
DETAILED SECTION					
1	ROOF DETAIL	16			
2	FOUNDATION + WALL + WINDOW	10			
3	BATH	1			
4	HATCHING	5 ½			
5	LABELS	1 ½			
SUBTOTAL		34			
TOTAL		94			
PENALTIES (-)					
GRAND TOTAL					
EXAMINATION NUMBER					
EXAMINATION NUMBER					6

