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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

STAPLE

LAND SURVEYOR'S CERTIFICATE OF THE CORNER HEIGHTS AND BOUNDARY LENGTHS OF STAND 2045, SURVEYED ON 2018-09-17

CORNER HEIGHTS IN METRES	BOUNDARY LENGTHS IN METRES
A = 876,0	AB = 16,06
B = 876,1	BC = 7,05
C = 876,0	CD = 23,36
D = 876,3	DE = 26,41
E = 876,3	EF = 18,07
F = 876,4	FG = 53,16
G = 876,4	GA = 47,69

SYMBOL LEGEND:

1. DECIDUOUS TREES

2. SHRUBBERY

4. GRAVEL PATHWAY

3. FRENCH DRAIN

AMUSEMENT PARK

STAND 2046

STAND 2045

STAND 2044

SITE PLAN

SCALE 1 : 500

NOTE:
Contractors must verify all dimensions and levels on site before commencing work. Architects to be notified immediately of any discrepancies.

ARCHITECT'S SIGNATURE:
CLIENT'S SIGNATURE:

ANSWER 20
In the space below, draw, in neat freehand, the front view and top view of the *SANS 10143* graphical symbol for a SINGLE WALL-MOUNTED URINAL.

3	2018-12-20	ADD SWING GATES	
2	2018-11-18	ADD SEWER LINES	
1	2018-11-17	REMOVE DECIDUOUS TREE	
REVISION	DATE	DESCRIPTION	
CREATIVE ARCHITECTS 777 BEREA ROAD DURBAN www.c-arch.co.za 031 334 9762			
PRINTED BY: KRYPTON (PTY) LTD		DATE OF PRINT: 2018-12-28	
DRAWING TITLE: SITE PLAN			
PROJECT: PROPOSED CLUBHOUSE, DECK AND POOL FOR LOIS CHALET ON STAND 2045, 4 COMIC STREET, DURBAN, 4091			
PROJECT NUMBER: FLY-2018		DRAWING NUMBER: 1818	
DATE: 2018-11-18	DRAWN: CLARK	CHECKED: KENT	SCALE: 1 : 500
REFERENCE CODE: SMAN-2018			

QUESTION 1: ANALYTICAL (CIVIL)

Given:
The site plan of an existing housing development with a proposed new club facility, a title panel and a table of questions. The drawing has not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawing, title panel and civil content.

QUESTIONS		ANSWERS		
1	Who prepared the drawing?		1	
2	What is the drawing number?		1	
3	What company printed the drawing?		1	
4	On what date was the last revision made?		1	
5	What must the contractors do before commencing with any work?		1	
6	What is the finish on the pathway?		1	
7	How wide is the new entrance to STAND 2045 in metres?		1	
8	What is the STAND number of the amusement park?		1	
9	What colour is used to represent new sewer lines on a drainage plan?		1	
10	What does the abbreviation <i>BIC</i> stand for?		1	
11	What does the broken line at 1 indicate?		1	
12	What does the symbol at 2 indicate?		1	
13	What is the abbreviation of the component that you will find at the junction at 3?		1	
14	Name the feature at 4.		1	
15	What are the final TWO components of the sewerage system?		2	
16	Which elevation of the clubhouse faces Comic street?		1	
17	What features make up the new club facility?		3	
18	In the space below (ANSWER 18), determine the total length of the perimeter of STAND 2045 in metres.		3	
19	In the space below (ANSWER 19), determine the total area of the new club facility in square metres.		3	
20	In the space in the title panel (ANSWER 20), draw, in neat freehand, the front view and top view of the <i>SANS 10143</i> graphical symbol for a SINGLE WALL-MOUNTED URINAL.		4	
TOTAL		30		

ANSWER 18
Show ALL calculations.

ANSWER 19
Show ALL calculations.

EXAMINATION NUMBER
EXAMINATION NUMBER

2

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Please turn over



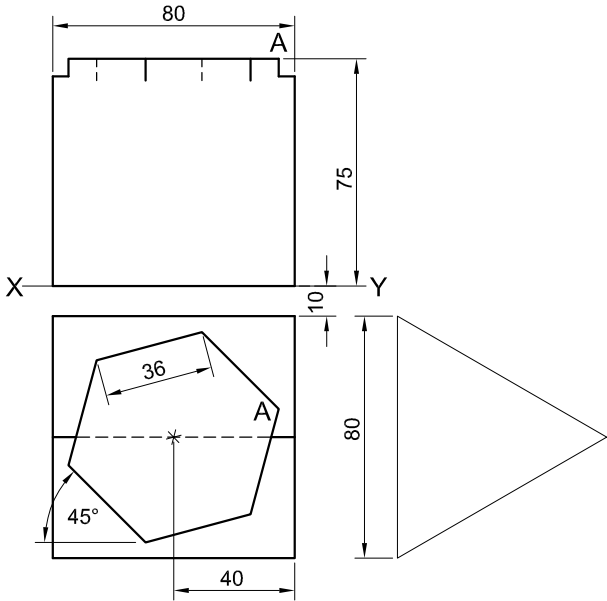
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QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- 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.

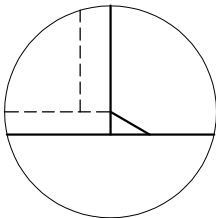
- Planning is essential.
 - Show ALL hidden detail.
 - Show ALL construction.
- [37]



EDGE 'A' IS THE SEAM

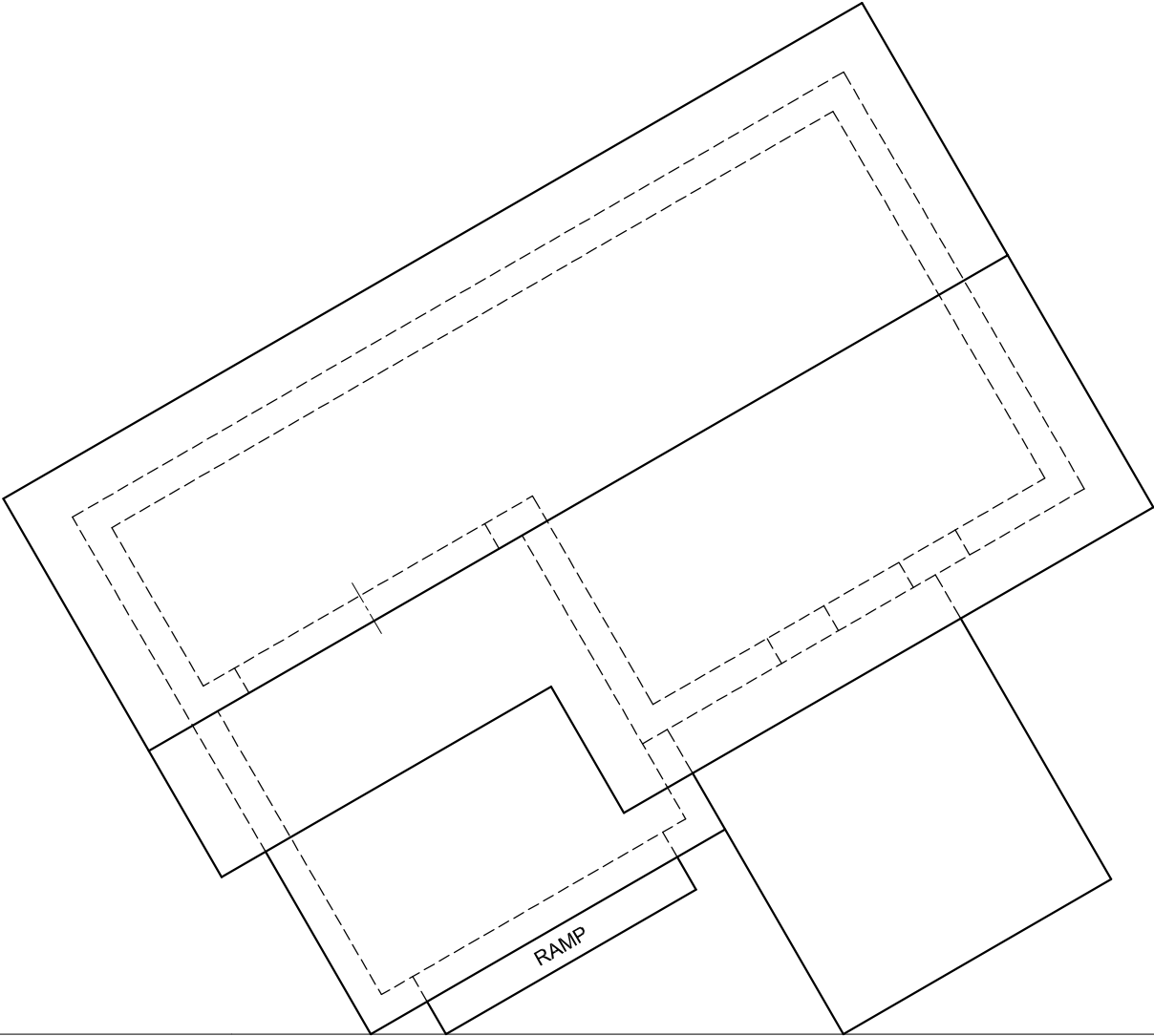
ASSESSMENT CRITERIA					
1	TOP VIEW	7 ¹ / ₂			
2	RIGHT VIEW	5			
3	FRONT VIEW	13			
4	DEVELOPMENT	11 ¹ / ₂			
PENALTIES (-)					
TOTAL		37			
EXAMINATION NUMBER					
EXAMINATION NUMBER					3

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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

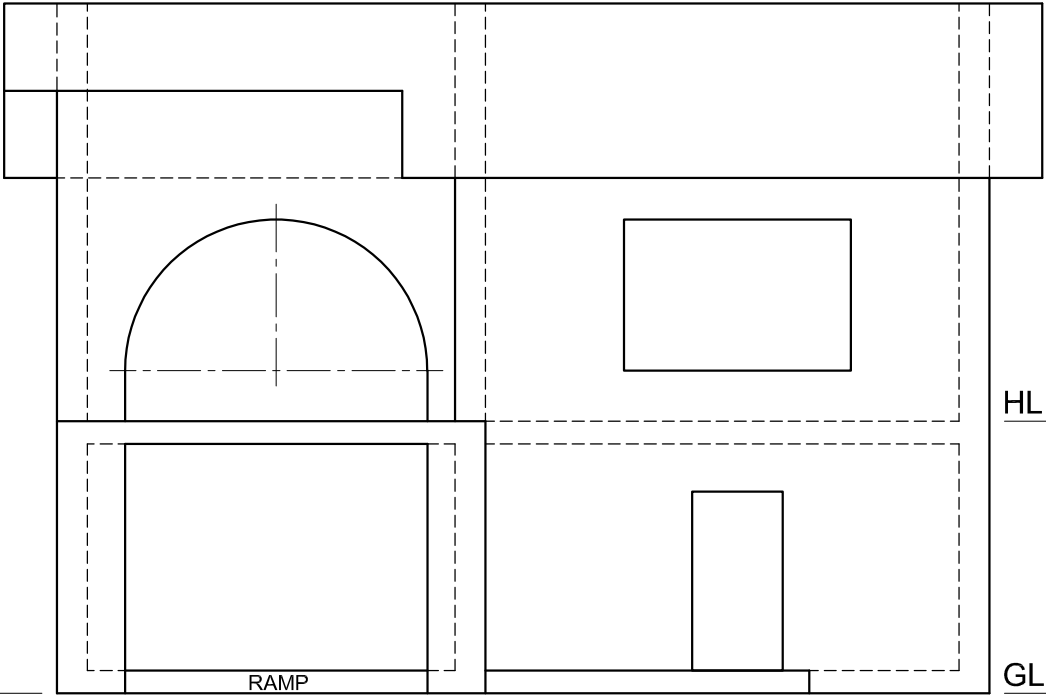
- Instructions:**
Complete the perspective drawing.
- Align the drawing sheet with the ground line (GL).
 - Determine and label the vanishing points.
 - Show ALL construction.
 - NO interior detail is required.
 - NO hidden detail is required.
- [39]

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

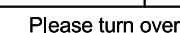


HL

GL



EXAMINATION NUMBER	
EXAMINATION NUMBER	
4	

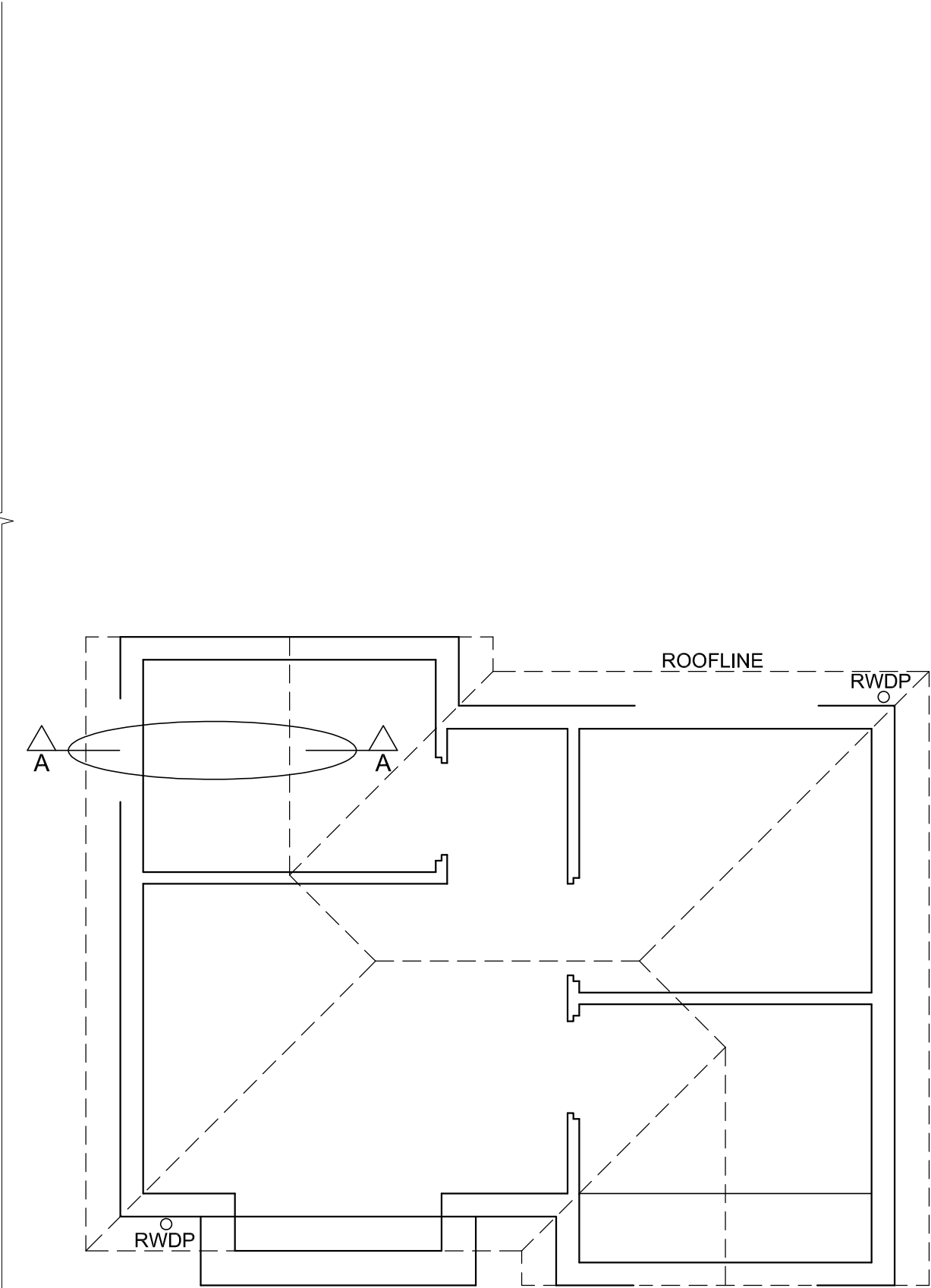




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DETAILED SECTION A-A
SCALE 1 : 20



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 1/2			
2	WALLS + STEP + FFL	6			
3	DOOR + WINDOW	7			
4	LABELS	1 1/2			
SUBTOTAL		25			
DETAILED SECTION					
1	ROOF DETAIL	16			
2	FOUNDATION + WALL + WINDOW	10			
3	BATH	1			
4	HATCHING	5 1/2			
5	LABELS	1 1/2			
SUBTOTAL		34			
TOTAL		94			
PENALTIES (-)					
GRAND TOTAL					
EXAMINATION NUMBER					
EXAMINATION NUMBER					6

