



# education

Department:  
Education  
**REPUBLIC OF SOUTH AFRICA**

## KWAZULU - NATAL

### GRADE 12

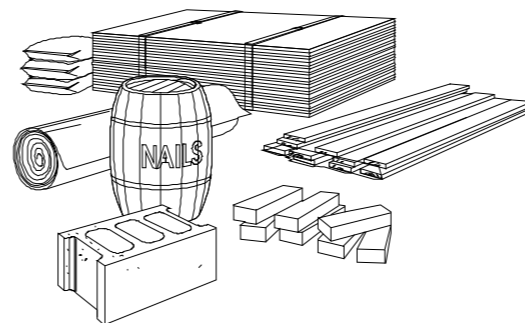
**ENGINEERING GRAPHICS AND DESIGN TRIAL P1**

**AUGUST / SEPTEMBER 2009**

**MARKS: 200**

**TIME: 3 hours**

**This question paper consists of 6 PAGES.**



### INSTRUCTIONS AND INFORMATION

1. The paper consists of FOUR questions and SIX pages.
2. Answer ALL the questions.
3. All drawings must be drawn to scale 1:1, unless otherwise stated.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in numerical sequence and handed-in irrespective of whether the question was attempted or not.
6. Careful time management is essential in order to complete all the questions.
7. Print your name in the block provided on every answer sheet.
8. All answers must be drawn accurately and neatly.
9. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY			
			MODERATED MARK
1		27	
2		37	
3		46	
4		90	
<b>TOTAL</b>		<b>200</b>	

LEVEL	CHECKED BY

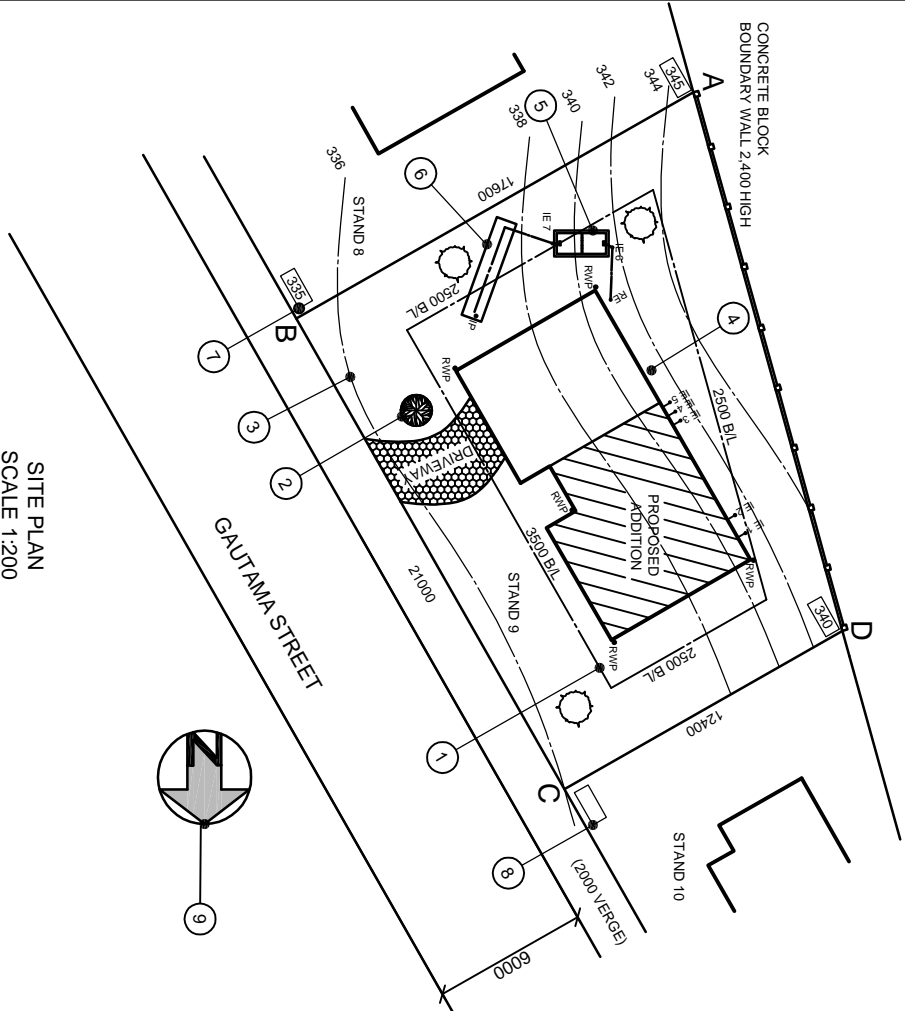
COMPLETE THE FOLLOWING:
NAME
GRADE /DIVISION

Please turn over

**QUESTION ONE - CIVIL ANALYTICAL**

Refer to the site plan below and answer the questions that follow. **27 Marks**

**SITE ZONED FOR RECREATION**



**SITE PLAN**  
**SCALE 1:200**

**QUESTIONS**

**ANSWERS**

01	What scale was used to draw the site plan?		1
02	What is the name of the street?		1
03	What lies on the south west of stand 9?		1
04	State in metres, the length of the boundary wall?		2
05	What is the area of stand 9?		2
06	What is the width of the street in metres?		1
07	What does the abbreviation IE stand for?		1
08	What does the abbreviation RE stand for?		1
09	What colour must the proposed addition be on the site plan?		1
10	Which elevation faces the street?		1
11	What is the line at 1 called?		1
12	What is the feature at 2 called?		1
13	What is the feature at 3 called?		1
14	What does the line at 4 represent?		1
15	What is the feature at 5 called?		1
16	Name the feature at 6.		1
17	What is the feature at 7 called?		1
18	What will the value at 8 be?		1
19	What does the symbol at 9 represent?		1
20	What is the distance in metres, from the front building line to the boundary?		1
21	Would stand 9 be above or below road level?		1
22	What finish is used on the driveway?		1
23	State the perimeter of stand 9.		2
24	What is the difference in height between A and C?		1

NAME \_\_\_\_\_

NAAM \_\_\_\_\_

**27**

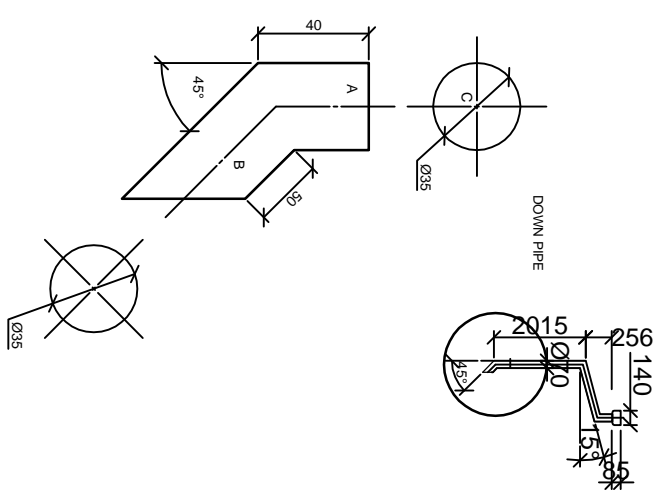
**QUESTION TWO**

The drawing below shows a part of the rain water down pipe used in Question 4 (civil drawing). The circled area shown in the drawing needs to be developed after first finding the line of intersection of the two pipes. An exploded view of this down pipe is shown below with its dimensions scaled down to half its original size (1:2).

- 2.1 Draw the given pipes (A and B) as shown in the exploded view.
- 2.2 Find the line of intersection of the two pipes. Show all necessary construction.
- 2.3 Develop the surface of pipe B.

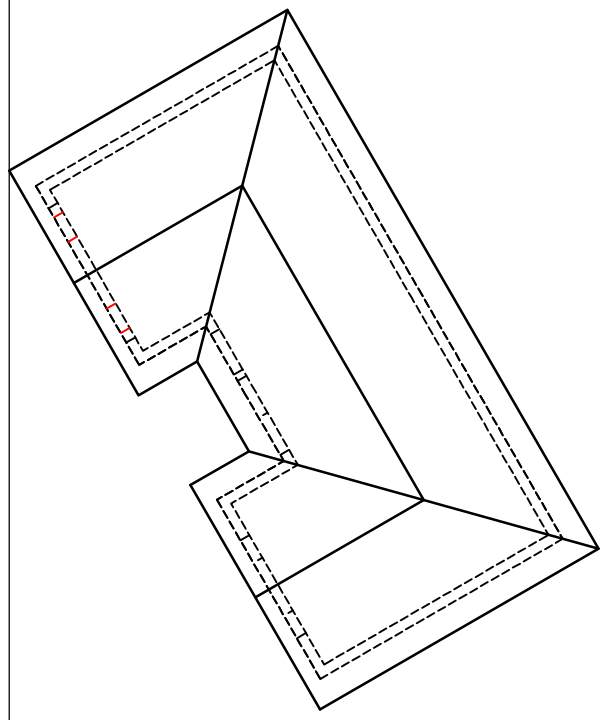
**30 marks**

c

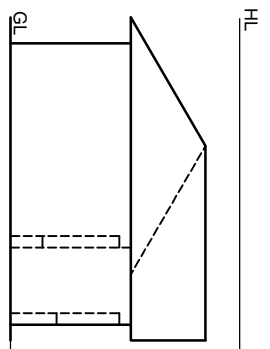


ASSESSMENT CRITERIA	
Drawing the given pipes	= 2
Circle and construction	= 2
Points and development	= 33
<b>TOTAL</b>	<b>37</b>

<b>NAME</b>	
<b>NAAM</b>	

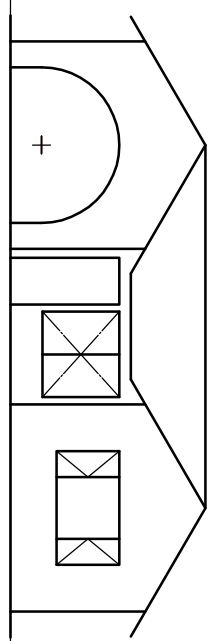


PP \_\_\_\_\_



HL \_\_\_\_\_

⊕ SP



**QUESTION THREE**  
 The figure below show the three views of a dwelling.  
 Draw a neat two-point perspective of the dwelling.

PP - Picture Plane  
 HL - Horizon Line  
 GL - Ground Line  
 SP - Station Point

Label the vanishing points: LVP and RVP  
 DO NOT SHOW HIDDEN DETAIL.  
 NB: Show only the openings for the garage door, front door and windows. **Do not** show the frame.

**ASSESSMENT CRITERIA**  
 You will be assessed on your ability to do the following:

- determine the vanishing points
- project points to station point
- project points to vanishing points
- draw the two-point perspective

46 marks

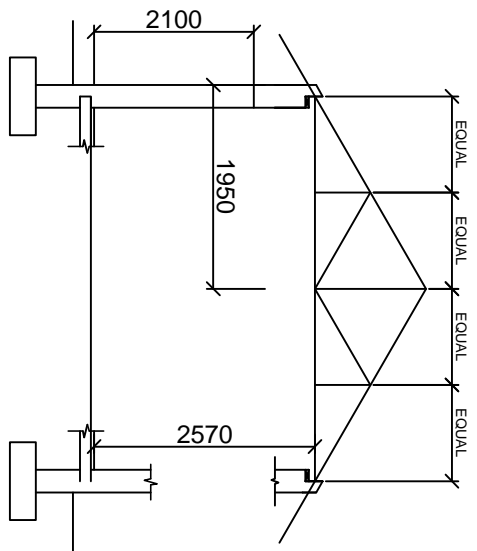
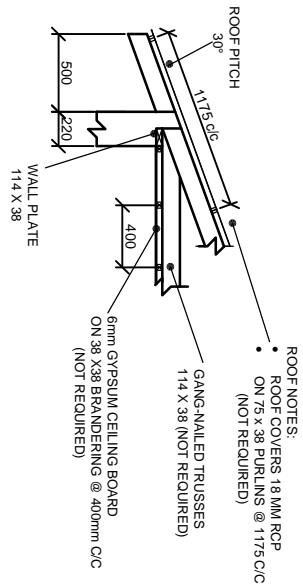
ASSESSMENT CRITERIA

Projection	=	7
Circle construction	=	6
Walls, window openings and door	=	23
Roof	=	10
<b>TOTAL</b>		<b>46</b>

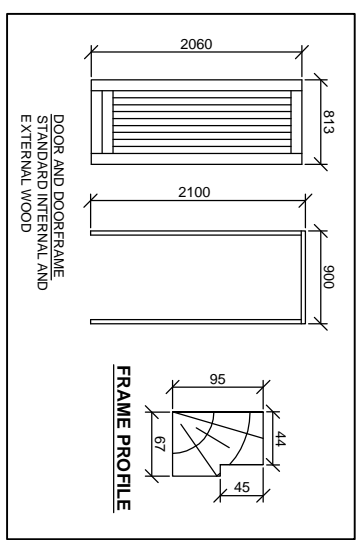
NAME \_\_\_\_\_

NAAM \_\_\_\_\_

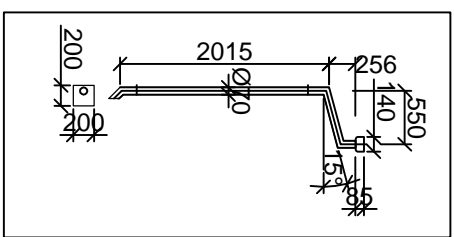
<b>DOOR AND WINDOW SCHEDULE</b>	PROPOSED ADDITION SHALLCROSS MR A GOODMAN	DRAWING NUMBER TUN 1987	CREATIVE BUILDERS 031 GOUDINEN
---------------------------------	---	----------------------------	-----------------------------------



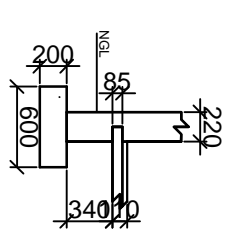
**DOOR AND DOOR FRAME DETAILS:**



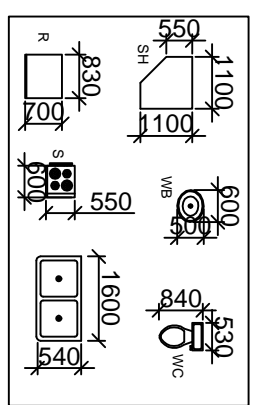
**GULLEY AND DOWN PIPE**



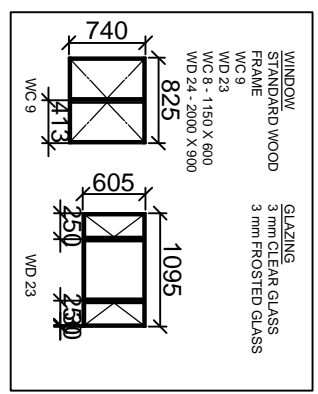
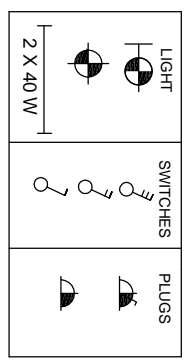
**SCHEMATIC ELEVATION**



**SANITARY AND KITCHEN FITTINGS**



**ELECTRICAL LEGEND**



**QUESTION FOUR - CIVIL DRAWING**

**GIVEN:**

- A schematic elevation showing the outer perimeter of a proposed new Teen Pad to an existing garage detailing the position of all features.
- Sketches of the incomplete roof and foundation detail
- A door and incomplete window schedule.
- Sanitary and kitchen fittings.
- Electric legend.
- Gully and down pipe detail
- Incomplete Floor Plan on **PAGE 6**.

**Instructions:**

- Answer the question on **PAGE 6**.
- Draw to a scale 1:50 the complete north east elevation and the complete sectional elevation to the given specifications.
- Complete the FLOOR PLAN according to given specifications.

**SPECIFICATIONS :**

**FLOOR PLAN**

**Add the following features to the floor plan:**

- All hatching detail.
- The sanitary and kitchen fixtures as per symbols and built-in-cupboards in the kitchen and bedroom.
- Draw light fittings outside where an " " is shown.
- 2 x 45 watt fluorescent tube fitting in the centre of the ceiling of the kitchen.
- 1 x 2 way switch for the kitchen and outside light
- 1 x 2 way switch for the lounge and outside light.
- 1 x 3 way switch for the bedroom, bathroom and outside light.
- One switched socket outlet where the ? are shown.
- One socket outlet where an ! is shown.

**THE NORTH EAST ELEVATION**

**Add the following features to the elevation:**

- Windows with lines to show window opening
- door with frame
- One gully with the down pipe where B is shown on the floor plan.

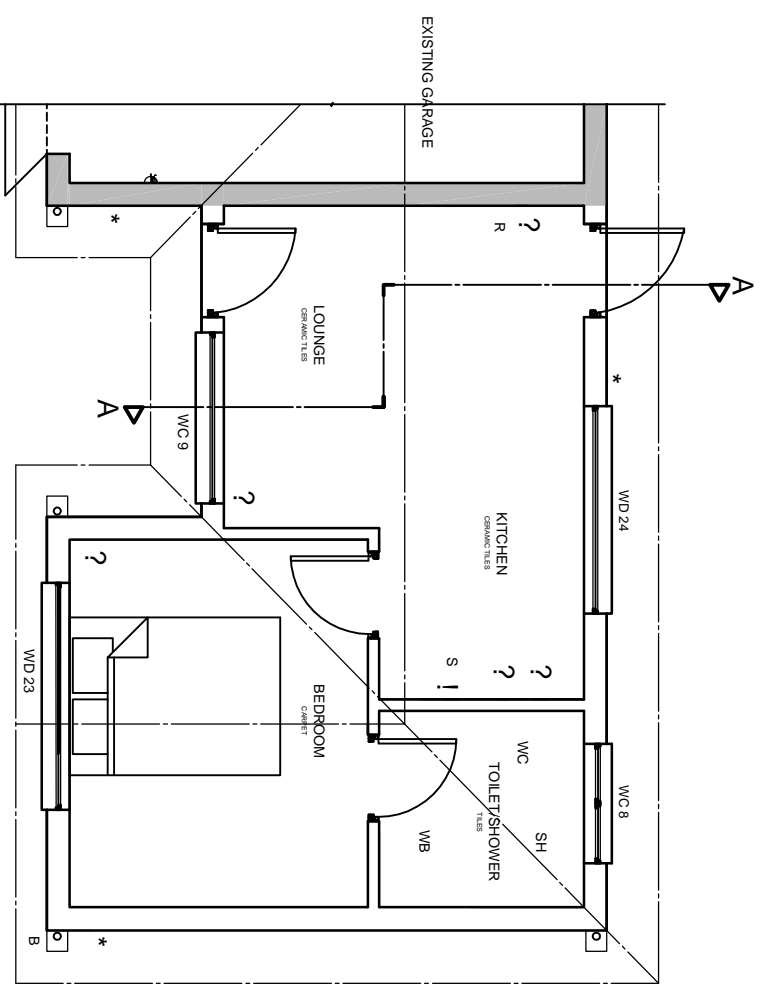
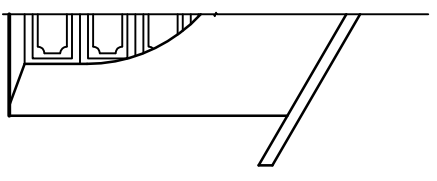
**THE SECTIONAL ELEVATION :**

**Add the following features to the sectional elevation:**

- The complete foundation, wall, floor slab and roof detail.
- The door and complete window detail.
- Visible fittings and walls and non-sectioned area of building.
- Lintels 100 x 75 mm above the doors and windows
- INTERNAL WALLS 110 mm
- All necessary hatching.
- Label the sectional elevation:SECTIONAL ELEVATION ON A-A.

**Note**

- Label ONLY the following features on the sectioned elevation: (natural ground level, damp proof course, window code, room designation and floor finish).
- ALL drawing must comply with guidelines contained in the SABS 0143
- Label the floor plan and include the scale.
- Do not show ceiling, brandering, purlins and roof sheathing.
- MARKS : 90



**ASSESSMENT CRITERIA**

FLOOR PLAN		
Hatching		10
Sanitary and Kitchen fittings & BIC		9
Electrical fittings		16
Label and scale		2
<b>NORTH EAST ELEVATION</b>		
Door and windows		22
External walls, roof, rainwater goods		20
Labels		3
<b>Sub-total</b>		<b>82</b>
<b>Sub-total / 2 ( )</b>		<b>41</b>
<b>SECTIONAL ELEVATION</b>		
Walls		7
Foundation		7
Roof		12
Window and door		6
Labels (6 / 2)		3
Hatching		14
<b>Sub-total ( )</b>		<b>49</b>
<b>TOTAL ( + )</b>		<b>90</b>

NAME	
NAAM	