DEPARTMENT OF EDUCATION
DEPARTEMENT VAN ONDERWYS
LEFAPHA LA THUTO
ISEBE LEZEMFUNDO

PROVINSIALE VOORBEREIDENDE EKSAMEN/ PROVINCIAL PREPARATORY EXAMINATION

GRAAD/GRADE 12

WISKUNDIGE GELETTERDHEID/ MATHEMATICAL LITERACY

VRAESTEL/PAPER 2

SEPTEMBER 2024

PUNTE/MARKS: 150

TYD/TIME: 3 uur/hours

Hierdie vraestel bestaan uit 12 bladsye en 'n addendum van 5 bladsye.
This question paper consists of 12 pages and an addendum of 5 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

   ANNEXURE A for QUESTION 1.2
   ANNEXURE B for QUESTION 2.1
   ANNEXURE C for QUESTION 2.2
   ANNEXURE D for QUESTION 4

3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

1.1 In TABLE 1 below is a list of explanations and definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	The volume is equal to meter times 3.
B	A map of a section of a travelling route showing distances between towns as traight lines
C	A Rectangular prism is a 2-dimensional shape of which 2 lenghts are similar to each other.
D	A unit of volume measurement that's 1 metre wide, 1 metre in height, and 1 metre in depth.
E	A map that is always drawn to scale.
F	A prism that is named after the 3-dimensional shape that has rectangles as its faces or base.

Use the information above to write down the letter of the explanation or definition (A–F) of EACH of the following concepts.

1.1.1 Strip map (2)

1.1.2 Rectangular prism (2)

1.1.3 m^3 (2)

1.2 James makes small wooden chairs. The chair is made from wooden rails and side supports called props.

ANNEXURE A shows a diagram of the parts, assembled chair and TABLE 2 with cutting list (in mm).

Use ANNEXURE A to answer the questions that follow.

1.2.1 Write down the length of the props. (2)

1.2.2 Convert the thickness of the wooden material to cm. (2)

1.2.3 Calculate the simplified ratio of the length of the rails to the length of the props. (3)

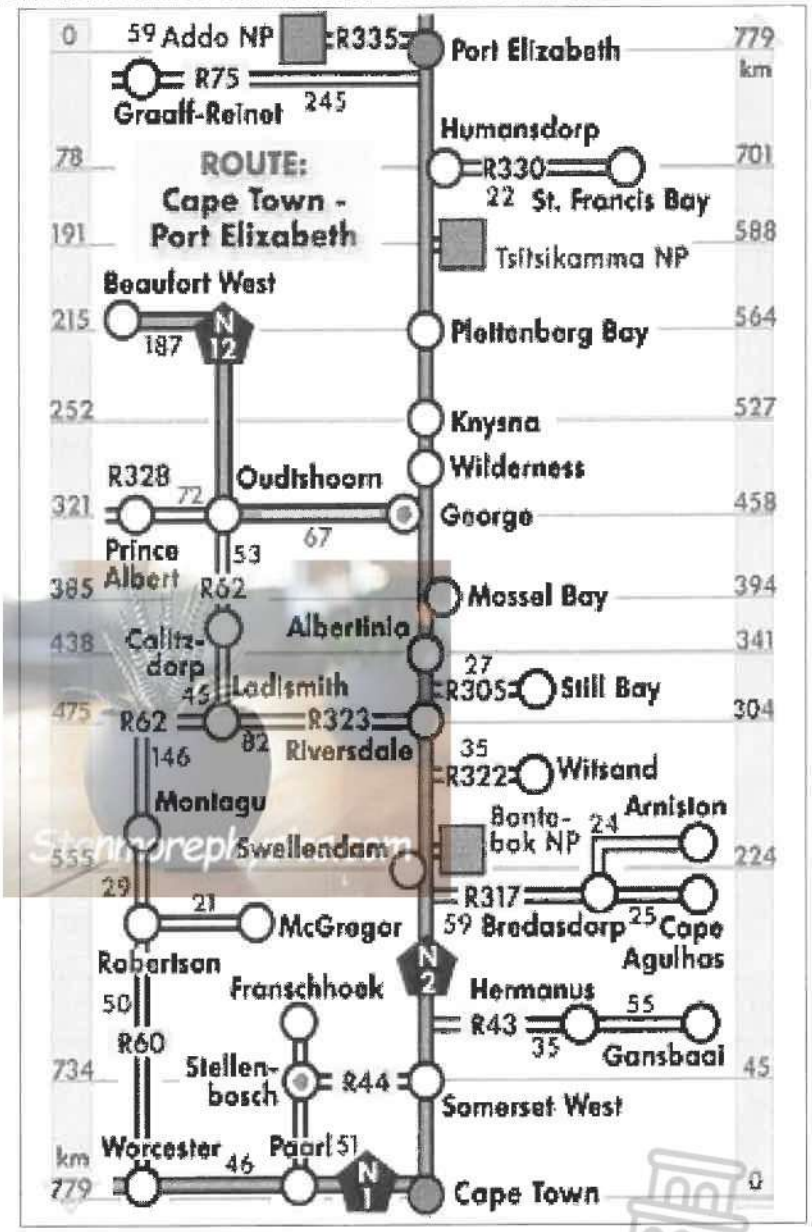
1.2.4 Determine the number of rails needed to construct the back piece. (2)

1.2.5 Write down the probability, that the length of some of the props might differ. (2)

1.2.6 Show that the space between each rail on the top part of the seat is 10 mm. (3)

1.3 Marius travels regular. He uses the strip map below.

STRIP MAP BETWEEN CAPE TOWN AND PORT ELIZABETH



[Adapted from Pinterest.suedafrika.net]

Use the strip map to answer the questions that follow.

1.3.1 Write down the distance between Cape Town and Port Elizabeth. (2)

1.3.2 Name the two national roads linking Beaufort West to Mossel Bay. (3)

1.3.3 Calculate the distance between Somerset West and Plettenberg Bay. (2)

[27]

QUESTION 2

2.1 Sally works at a restaurant near her home. The restaurant can accommodate a maximum of 68 customers. Every Friday night they are normally fully booked. The special on a Friday is sushi.

ANNEXURE B shows the floorplan of a restaurant.

Use ANNEXURE B to answer the questions that follow.

2.1.1 Write down the maximum number of people that can dine outside. (2)

2.1.2 Explain the meaning of the term *floorplan*. (2)

2.1.3 State the general direction from the office to the sushi bar. (2)

2.1.4 Write down the number of exterior doors situated on the southern side of the restaurant. (2)

2.1.5 Calculate (rounded to the nearest 5 meters) the inside length of the outside dining area. (5)

2.1.6 One Friday a tour group consisting of 17 people visited the restaurant. They all ordered pizza.

The manager told the chef that there is a probability that 76% of all their customers will order the special on that Friday.

Verify by means of calculations whether he is correct. (5)

2.2 ANNEXURE C shows the street map location of Sally's home and where the restaurant is located.

Use ANNEXURE C to answer the questions that follow.

2.2.1 Write down the name of the road where the restaurant is situated. (2)

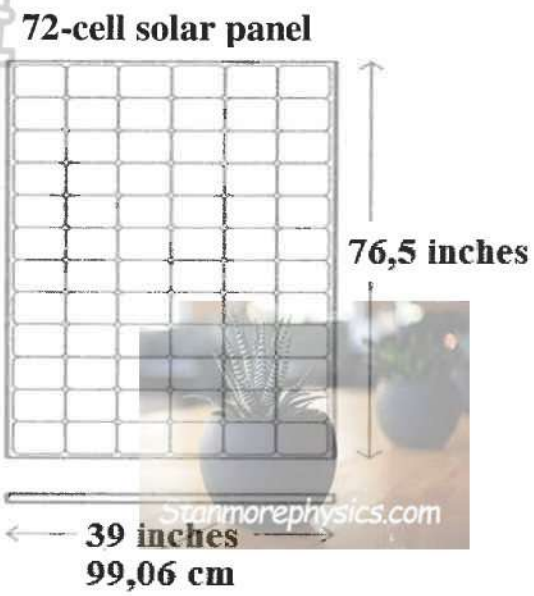
2.2.2 Name the building on the corner of Church Street and Temple Street. (2)

2.2.3 Describe, using compass direction, the shortest driving route from Sally's house to the restaurant. (5)

[27]

QUESTION 3

3.1 Mr Adams installed 72-cell solar panels on the roof of his home. Given below is a sketch of ONE solar panel and some information regarding the solar panel.

SKETCH OF ONE SOLAR PANEL	INFORMATION FOR ONE SOLAR PANEL
	Length = 76,5 inches Width = 39 inches = 99,06 cm Energy output 1,5 kWh per day

The battery connected to the solar panels has a maximum capacity of 24 kWh.
The Adams household daily electricity use is 10 kWh per day.
NOTE: kWh = kilowatt-hours

[Adapted from Mercury inverters.com]

Use the information above to answer the questions that follow.

3.1.1 Calculate how long it will take 8 solar panels to charge the battery to maximum capacity. (3)

3.1.2 The maximum temperature solar panels can be exposed to. is 150 °F. Convert 150 °F to Celsius.

You may use the formula: **°C = (°F – 32°) ÷ 1,8** (2)

3.1.3 Determine (in cm) the perimeter of ONE solar panel.

You may use the formula:

Perimeter of a rectangle = 2 × (length + width) (6)

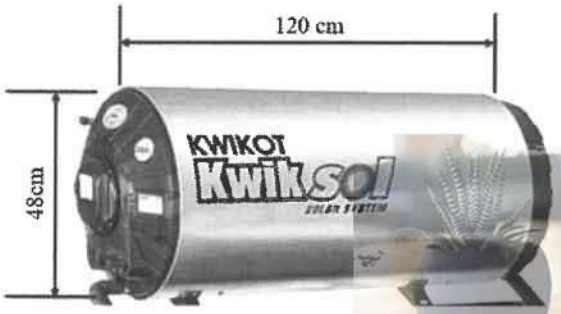
3.1.4 State ONE reason why Mr Adams installed solar panels. (2)

3.2 Kwikot is a geyser company that sell hot water cylinders (geysers). The geyser consists of a cylinder isolated with foam rubber all around to maintain the desired temperature of the water in the cylinder. The inner height and diameter of the inside cylinder tank are 4 cm shorter than the outer height and diameter of the geyser.

The weight of an empty geyser is 14 kg.

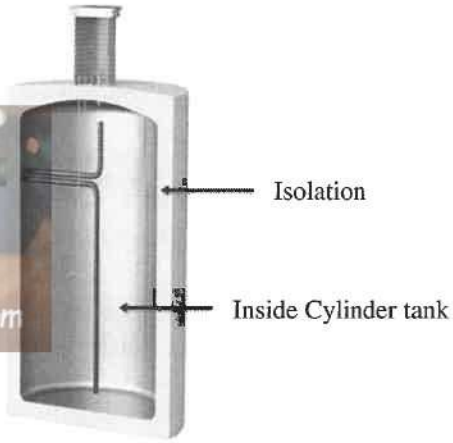
Below is a diagram showing the outer dimensions as well as the cross section of the geyser.

HORIZONTAL PICTURE OF GEYSER SHOWING OUTER DIMENSIONS



Length = 120 cm
Width = 48 cm

VERTICAL CROSS SECTION OF THE GEYSER



[Adapted from Kwikot geysers.www.kwikot.com]

Use the information above to answer the questions that follow.

3.2.1 Determine the outer radius of the geyser. (2)

3.2.2 Calculate the inner height (length) of the inside cylinder tank. (2)

3.2.3 Calculate, rounded to the nearest 10 litres, how much hot water the inner cylinder can accommodate.

You may use the formula: **Volume = 3,142 × raduis^2 × height**

NOTE: 1 m^3 = 1 000 litre (6)

3.2.4 Use your answer in QUESTION 3.2.3 and determine what the weight of one water filled geyser is if 1 litre = 1 kg. (3)

[26]

QUESTION 4

4.1 Mr Masigo bought a house.

ANNEXURE D shows the floorplan of the house.

Use ANNEXURE D to answer the questions that follow.

4.1.1 Write down the ratio of the toilets to the basins in its simplest form. (3)

4.1.2 Calculate, as a percentage, how much smaller the kitchen is compared to any bedroom. (3)

4.1.3 Write down, the side (north, south, east or west) of the house that has no windows. (2)

4.1.4 State, with a reason, whether the bedrooms of this house receive morning or afternoon sun. (3)

4.1.5 The actual length of the eastern side (veranda excluded) of the house is 12 m.

Determine the scale rounded to a whole number that was used to draw the plan. (5)

4.1.6 The inside length of the dining room is 6,1 m.

The builder stated that the inside width of the dining room will be more than 4 m.

Verify by showing all calculations whether his statement is correct.

You may use the formula:

Area of a rectangle = length × width (6)

4.2 Mr Masigo intends tiling the living room.
The length of one square tile is 304 mm. The tiles are sold per box. There are six tiles in each box.
Tile cement is sold in 20 kg bags. One bag of tile cement covers an area of 6 m^2.

Below is the diagram of one tile, picture of one box of tiles, and a picture of one bag of tile cement.

A DIAGRAM OF ONE SQUARE TILE	A BOX OF TILES	A BAG OF TILE CEMENT
 Side length = 304 mm	 A box of 6 tiles	 Cost R89,90 excluding VAT

Use the information above and ANNEXURE D to answer the questions that follow.

4.2.1 Calculate the area of one tile in m^2 rounded to 4 decimal places.

You may use the following formula:

Area of a square = side^2 (3)

4.2.2 5% extra tiles must be purchased to cover for cutting and breakages.

Calculate how many boxes of tiles will be needed to cover the area of the living room. (6)

4.2.3 VAT in South Africa is 15%. Tile cement cost R89,90 excluding VAT.
The owner of the house budgeted R500,00 for the tile cement.

Verify showing all calculations whether his budget for the tile cement is enough. (6)
[37]

QUESTION 5

5.1 Sello is a truck driver for a company that transport goods by road from Walvis Bay to Windhoek.

The map below shows the route Sello travels between the Walvis Bay and Windhoek. The one-way distance from Walvis Bay to Windhoek is 396 km.

Use the information above to answer the questions that follow.

5.1.1 State the name of the national park near Walvis Bay. (2)

5.1.2 Sello drove from Walvis Bay to Windhoek.

Write down the last town he passes before he reaches Windhoek. (2)

5.1.3 The average diesel consumption for Sello's truck is 55 ℓ per 100 km.

Calculate how many litres of diesel Sello will need for one journey. (3)

5.1.4 Sello, driving the truck, left the shipping yard in Walvis Bay at 8:30 am. He stopped for 15 minutes at Usakos. He drove at an average speed of 72 km/h.

(a) State ONE valid reason why he stopped at Usakos. (2)

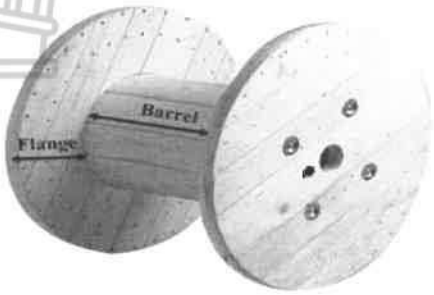
(b) Sello stated that he arrived at his destination in Windhoek at 13:30.

Verify, showing all calculations, whether Sello's statement is valid.

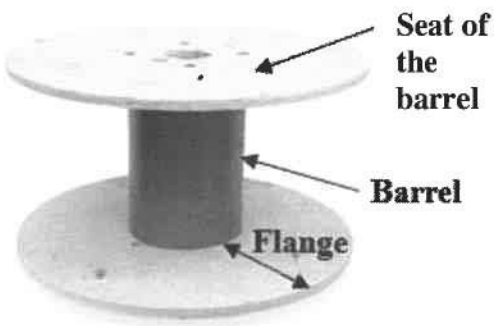
You may use the formula: **Distance = speed × time** (6)

5.2 One of the items that Sello transports is copper cables. The copper cable is wound on plywood reels called spools. A spool consists of a barrel between two circular-shaped seats.
The section between the barrel and the end of the seat is called the flange. Reels come in different sizes.

Side view of empty spool

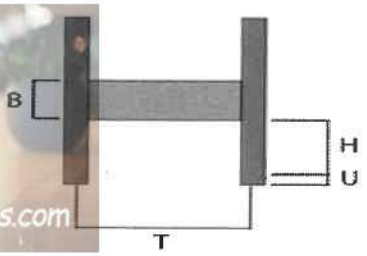


Top view of an empty spool



Picture of spool of wire

Sketch of spool of wire



Key to diagram.

U = unused portion of flange	H = used portion of flange
T = equals reels traverse	B = equals barrel diameter

Use the information above to answer the questions that follow.

5.2.1 Calculate the circumference, in metres, of the seat of a barrel with a radius of 70 cm.
You may use the formula: **Circumference of a circle = diameter × 3,142** (3)

5.2.2 The diameter of the cable of a plywood 14 reel is 0,6 inches.

Sello stated that the length of the copper cable spooled around this reel is more than 65 metres if the reel factor is 75,60.

Verify showing all calculations if he is correct.

You may use the formula:

Length of cable (in feet) = reel factor ÷ (cable diameter in inch)^2

NOTE: 1 foot = 0,3048 metres (5)

5.2.3 State ONE reason why cable companies do not wire the whole wooden reel with copper cable, but instead leave a little space (U) on the flange. (2)

5.3 The trailer dimension of Sello's truck is 2,5 m by 15,8 m, as illustrated below.

TRAILER DIMENSIONS OF A TRUCK

Use the information above to answer the questions that follow.

5.3.1 The height of an average cable reel is 1,15 m and the diameter is 1,5 m.

Calculate the maximum number of spools the truck can carry if they are not stacked on top of each other. (5)

5.3.2 The maximum number of reels, packed next to each other, are loaded on the trailer.

Calculate the space, on the length of the trailer, that is free. (3)

[33]

TOTAL: 150

DEPARTMENT OF EDUCATION
DEPARTEMENT VAN ONDERWYS
LEFAPHA LA THUTO
ISEBE LEZEMFUNDO

PROVINSIALE VOORBEREIDENDE EKSAMEN/ PROVINCIAL PREPARATORY EXAMINATION

GRAAD/GRADE 12

WISKUNDIGE GELETTERDHEID/ MATHEMATICAL LITERACY

VRAESTEL/PAPER 2

SEPTEMBER 2024

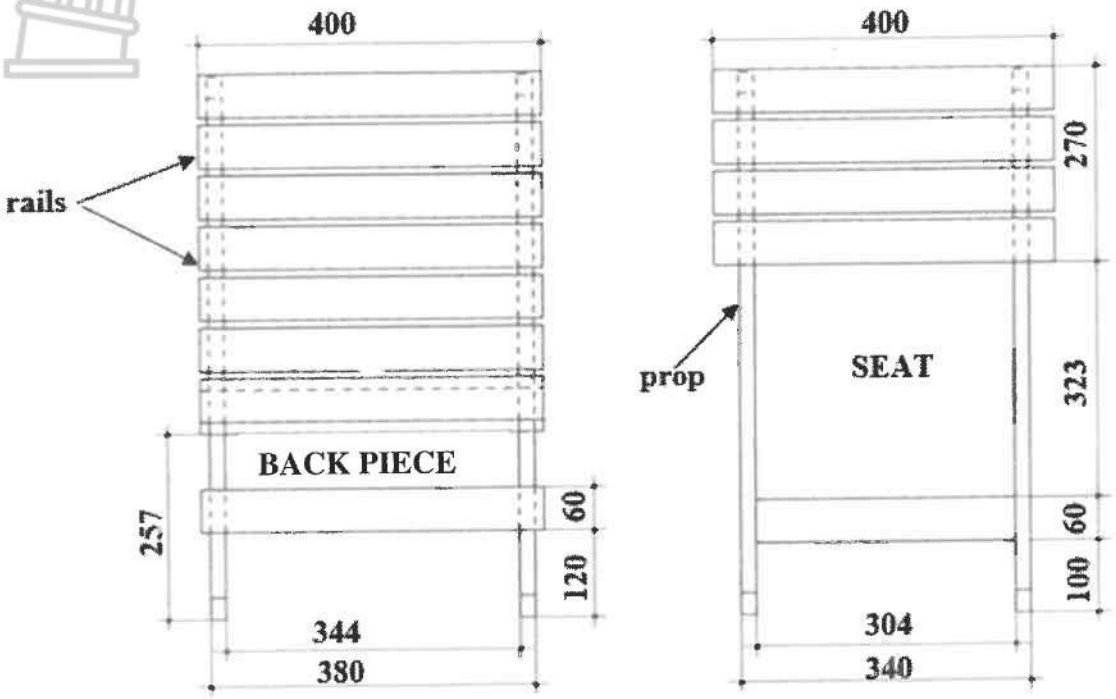
ADDENDUM

Hierdie addendum bestaan uit 5 bladsye met 4 bylaes.
This addendum consists of 5 pages with 4 annexures.

ANNEXURE A

QUESTION 1.2

SKETCH OF BACK PIECE AND SEAT OF THE CHAIR (WITH DIMENSIONS IN MM)



PICTURE OF ASSEMBLED CHAIR

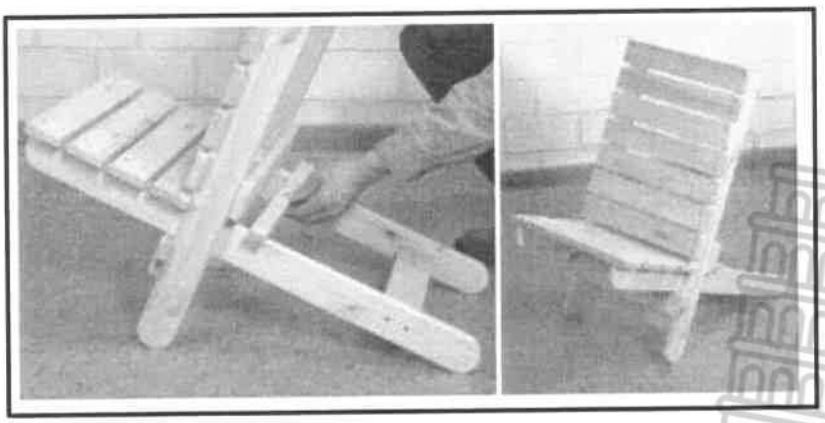


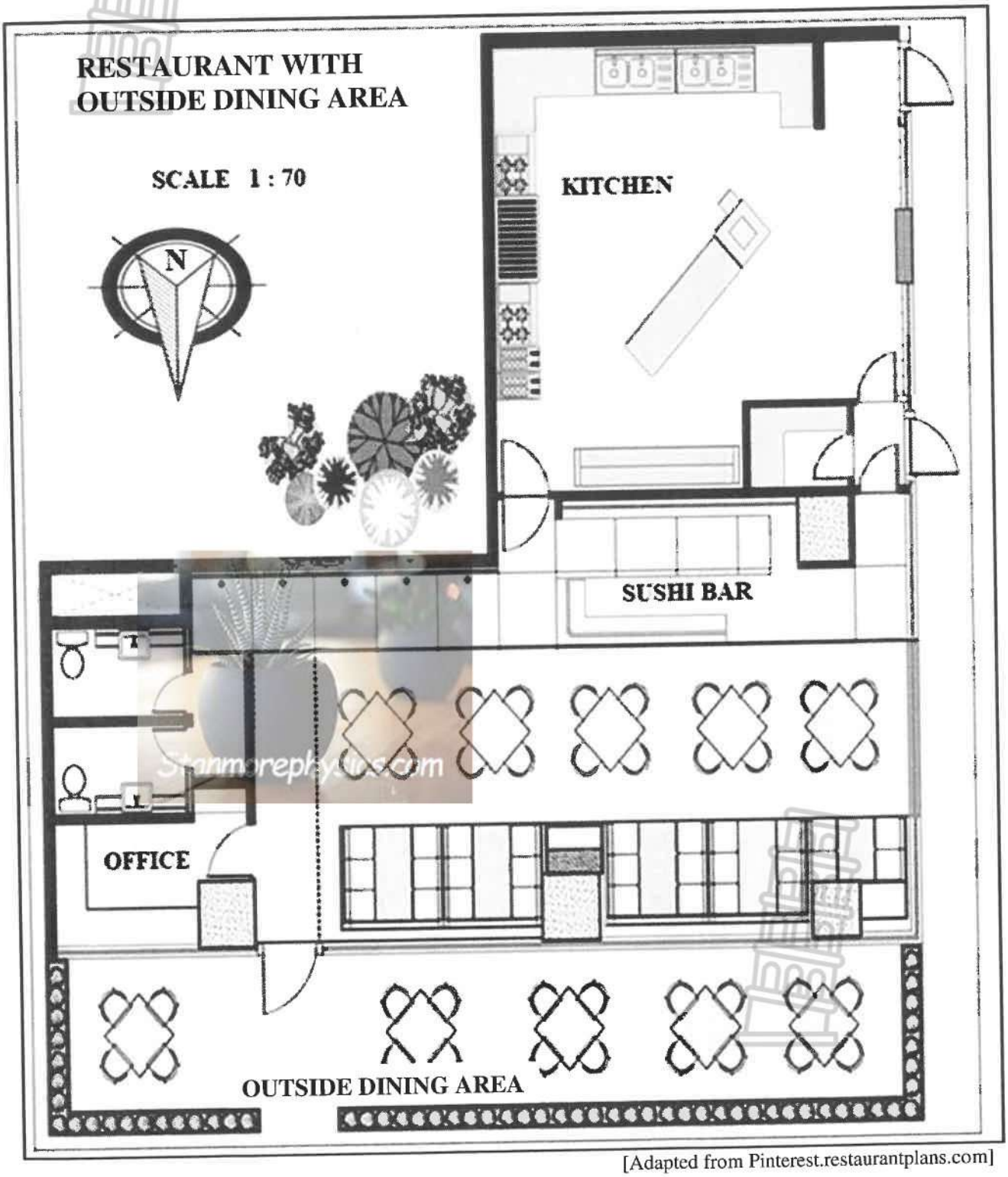
TABLE 2:		
Number of pieces	**Description**	**Size (in mm) length × width × thickness**
4	Props	750 x 60 x 18
13	Rails	400 x 60 x 18

[Adapted from Pinterest Holzwerken.com]

ANNEXURE B

QUESTION 2.1

FLOOR PLAN OF A RESTAURANT

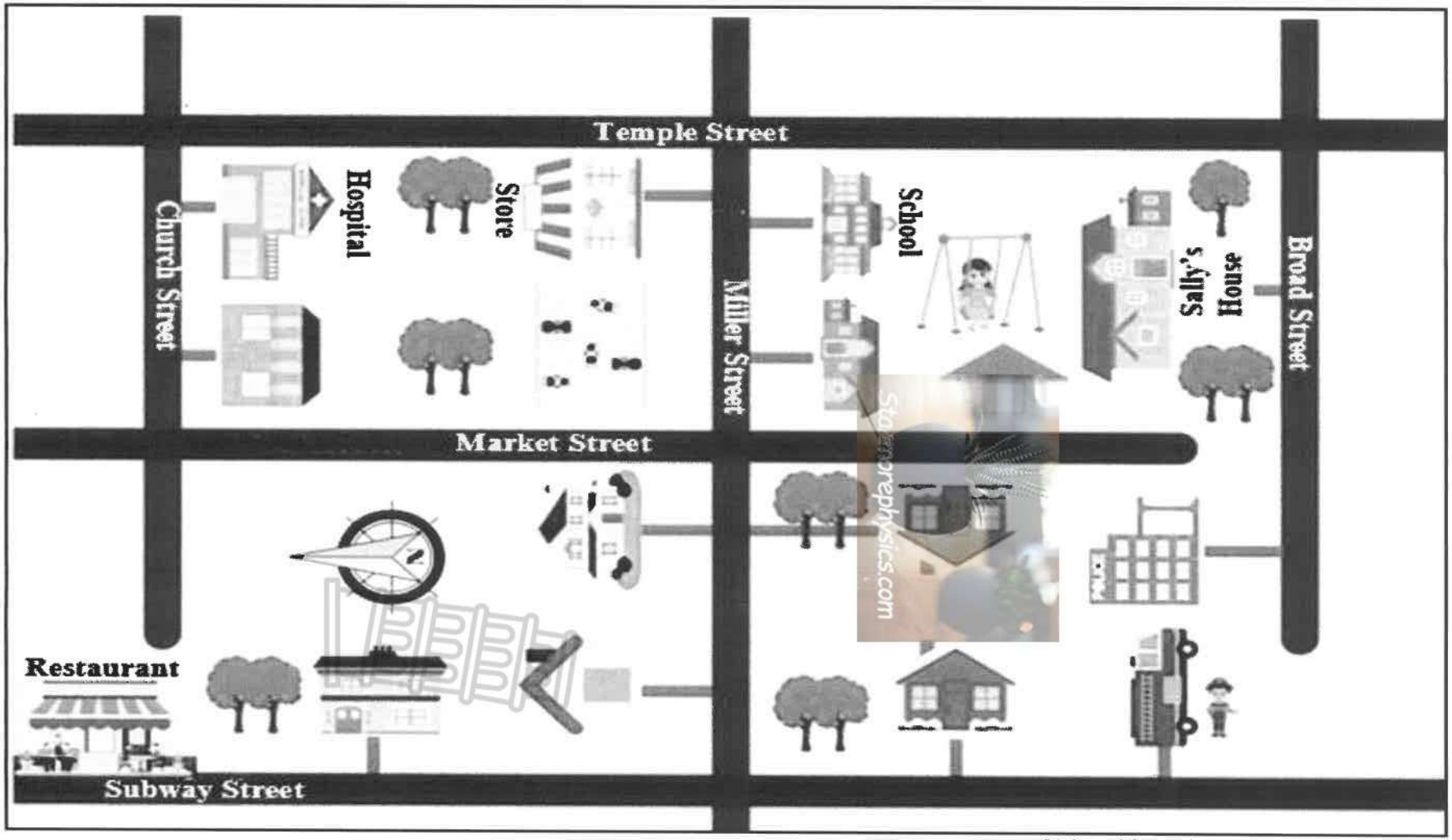


[Adapted from Pinterest.restaurantplans.com]

ANNEXURE C

QUESTION 2.2

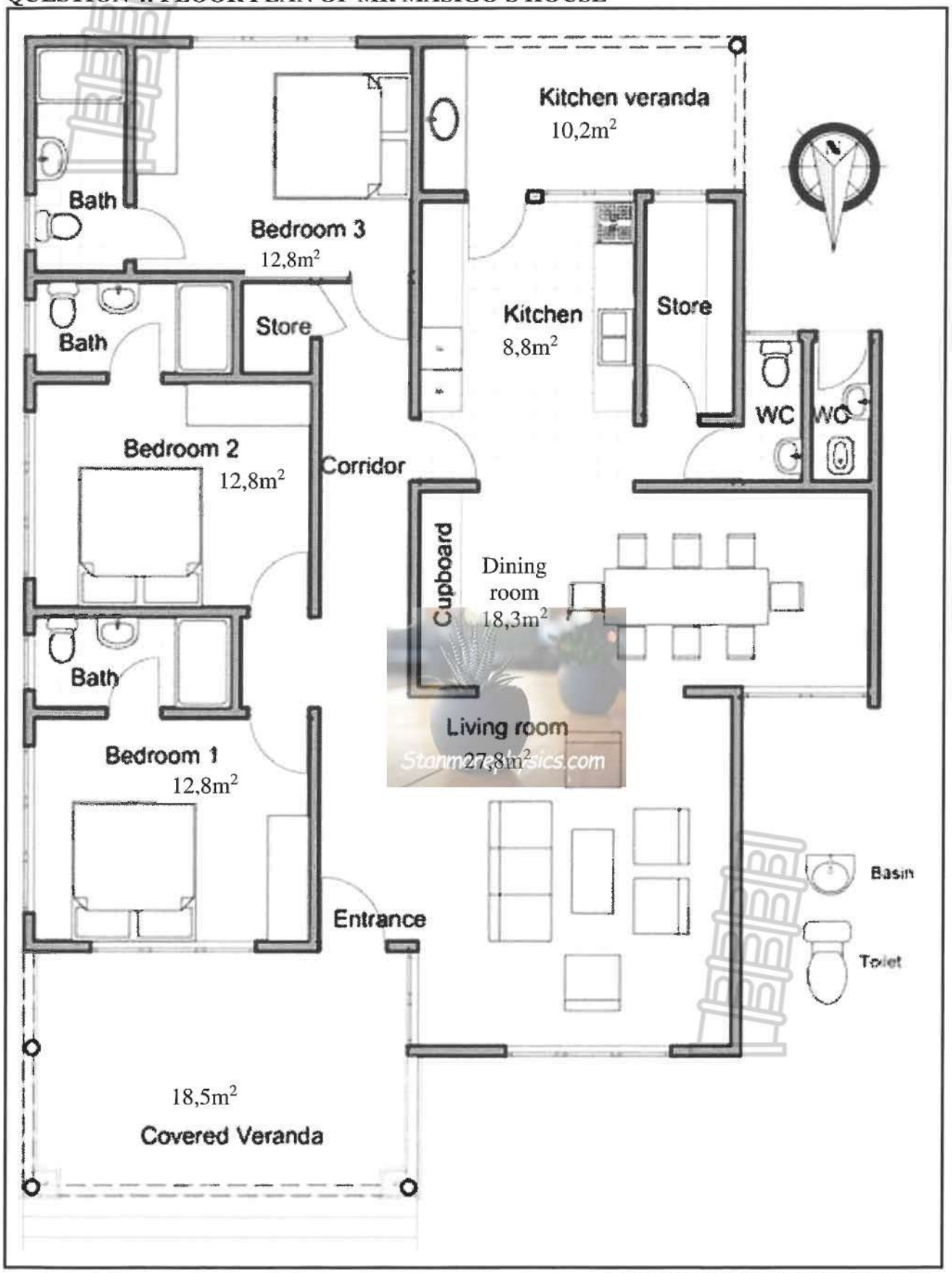
ROAD MAP OF SALLY'S AREA



[Adapted from Pinterest.restaurantplans.com]

ANNEXURE D

QUESTION 4: FLOOR PLAN OF MR MASIGO'S HOUSE



[Adapted from Pinterest.houseplans.com]

DEPARTMENT OF EDUCATION

DEPARTEMENT VAN ONDERWYS

LEFAPHA LA THUTO

ISEBE LEZEMFUNDO

PROVINCIAL PREPARATORY EXAMINATION/
PROVINSIALE VOORBEREIDENDE EKSAMEN

GRADE/*GRAAD* 12

MATHEMATICAL LITERACY/
WISKUNDIGE GELETTERDHEID

PAPER/*VRAESTEL* 2

SEPTEMBER 2024

NASIENRIGLYNE

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
M	Method/*Metode*
MA	Method with accuracy/*Metode met akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/graph/document/diagram/*Lees vanaf tabel/grafiek/document/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in 'n formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
P	Penalty, e.g. for no units, incorrect rounding off, etc./*Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for rounding/*Geen penalisasie vir afronding nie*
NPU	No penalty for omitting correct unit/ *Geen penalisasie vir die uitlos van die korrekte eenheid nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*
RCA	Rounding consistent with accuracy/ *Afronding met volgehoue akkuraatheid*

These marking guidelines consist of 11 pages./
Hierdie nasienriglyne bestaan uit 11 bladsye.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error or break down.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra incorrect item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- A conclusion mark can only be given if relevant calculations precede it (at least 1 mark before conclusion).
- No penalty for rounding (NPR) if the first decimal is correct, except questions involving money

LET WEL:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, merk die doodgetrekte (gekanselleerde) poging.*
- *Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout of afbreuk "break down" nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra verkeerde item.*
- *'n Algemene nasienbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.*
- *'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan(ten minste een punt voor die gevolgtrekking)*
- *Afronding tel as 'n onafhanklike punt.*
- *Geen penalisering vir ronding(NPR) as die eerste desimaal korrek is nie, behalwe as vrae geld insluit*

QUESTION/*VRAAG* 1 [27 MARKS/*PUNTE*] Answer Only AO- full marks			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
1.1.1 *	B ✓✓A	2 A correct selection/letter (2)	M&P L1
1.1.2 *	F ✓✓A	2A correct selection/letter (2)	M L1
1.1.3 *	D ✓✓A	2A correct selection/letter (2)	M L1
1.2.1 *	750 mm ✓✓RT	2RT correct length **NPU** (2)	M L1
1.2.2 *	Thickness = 18 ÷ 10 ✓C *Dikte* = 1,8 cm ✓A	1C conversion 1A answer in cm (2)	M L1

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.2.3 *	✓RT Ratio/*Verhouding* = 400 : 750 ✓MA = 8: 15 ✓A	1RT values 1MA correct order 1A ratio simplified form (3)	M L1
1.2.4	Rails/*Reelings* : 8 ✓✓RT	2RT correct number of rails Accept 7 (2)	M L1
1.2.5	Probabilty = 0 ✓✓A	2A answer Also accept 0% (2)	P L1
1.2.6	Space/*Spasie* = 270- 240 ✓M = 30 ÷ 3 ✓M = 10 ✓CA	1M subtracting 1M dividing by 3 1CA space (3)	M L1
1.3.1	Distance/*Afstand* : 779 km ✓✓RT	2RT reading correct distance **NPU** (2)	M&P L1
1.3.2	Routes/*Roete* : N2 and N12 ✓RT ✓✓RT	2RT first correct route 1RT second correct route (3)	M&P L1
1.3.3	Distance/*Afstand* = 734 – 215 ✓MA = 519 km ✓A **OR/OF** = 564 – 45 ✓MA = 519 km ✓A	1MA subtracting correct values 1A correct distance **NPU** (2)	M&P L1
			[27]

QUESTION/*VRAAG* 2 [27 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
2.1.1	Amount of people/*Getal mense* = 20 ✓✓RT	2RT reading from the plan (2)	M&P L1
2.1.2	A scale drawing of a room viewed from ✓✓A above/Top view of a building/ Top view of a building without the roof/*'n Skaaltekening van 'n vertrek van bo gesien./Boaansig van die gebou//Boaansig van die gebou sonder die dak*	1A drawing 1A from above (2)	M&P L1
2.1.3	Southwest/Suidwes ✓✓RT	2RT correct direction (2)	M&P L2
2.1.4	No doors/*Geen deure* ✓✓RT	2RT reading info from the plan also accept 0 (2)	M&P L2
2.1.5 *	Scale = 1:70 = 1 : 70 = 145 : x ✓A = 70 × 145 ✓MA ✓CA = 10 150 mm ÷1 000 ✓C = 10.15 m = 10 m ✓R OR = 14,5 : x ✓A = 70 × 14,5 ✓MA ✓CA = 1 015 cm ÷100 ✓C = 10.15 m = 10 m *Skaal* = 70 × 150 = 10 500 = 10 500 ÷1 000 = 10,5 = 10 m (Afrikaans)	1A correct measurement 1MA multiplying by 145 1CA length outdoor dinning 1C converting to metre 1R correct rounded length Accept range: 144 – 146 mm (Eng) Aanvaar omvang: 149-151mm (Afr) (5)	M&P L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
2.1.6	Probability = $\frac{17}{68}$ ✓A✓R ✓A *Waarskynlikheid* = 0,25 × 100 = 25% ✓MA = 100 – 25 = 75% ✓MCA OR Probability = $\frac{68-17}{68}$ ✓A ✓A × 100 = 75% ✓MA ✓MCA No, he is not correct./*Nee, hy is nie reg nie.* ✓O	1A correct nominator 1A correct denominator 1MA percentage calculation 1MCA subtracting 1O correct opinion (5)	P L4
2.2.1 *	✓✓RT Subway Street(ENG) /*Metrostraat (AFR)*	2RT correct street name (2)	M&P L1
2.2.2	✓✓RT Hospital/*Hospitaal*	2A correct building name (2)	M&P L1
2.2.3	On Broad Street, turn left and drive in an easterly direction/*By Breëstraat, draai links en ry in 'n oostelike rigting.* ✓A Turn left on Temple Street and drive in a northerly direction/*Draai links by Templestraat en ry in 'n noordelike rigting* ✓A Turn left at Miller Street and drive in a westerly direction, passing Market Street./*Draai links by Millerstraat en ry in 'n westelike rigting, verby Markerstraat.* ✓A Turn right in Subway Road and drive in a northerly direction/*Draai regs in Metrostraat en ry in noordelike rigting.* ✓A The restaurant will be situated on your right-hand side/*Die restaurant sal aan jou regterkant geleë wees.* ✓A	1A first correct direction 1A second correct direction 1A third correct direction 1A forth correct direction 1A location of the restaurant (5)	M&P L2
			[27]

QUESTION/*VRAAG* 3 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
3.1.1 *	Charging Time = 8 × 1,5 ✓MA *Herlaai tyd* = 12 ✓CA = 24 ÷ 12 = 2 days ✓CA	1MA multiplying correct values 1CA total for 8 panels 1CA number of days (3)	M L1
3.1.2	°C = (150 -32) ÷ 1,8 ✓SF = 65,6 ✓CA	1SF substitution correctly done 1CA temperature in Celsius (2)	M L2
3.1.3	Lenght of Panel/ *Lengte van Paneel* = $99{,}06 \times \frac{76{,}5}{39}$ ✓RT ✓MA = 194,31 cm ✓CA **OR** *Lengte van Paneel* = $\frac{99{,}06}{39} \times 76{,}5$ ✓RT ✓MA = 194,31 cm ✓CA Perimeter/*Omtrek* = 2 × (194,31 + 99,06) ✓SF = 2 × (292,37) ✓S = 586,74 cm ✓CA	1RT values 39 and 99,06 1MA conversion 1CA length in cm 1SF correct substitution 1S simplification 1CA perimeter of the panel (6)	M L3
3.1.4	It is cheaper in the long run/ *Goedkoper op die langer duur* ✓O Uninterupted supply of energy/ *Ononderbroke voorsiening van krag* No more load shedding/ *Geen beurtkrag*	2O Any correct answer (2)	M L4
3.2.1	Raduis = 48 ÷ 2 ✓MA = 24cm ✓A	1MA dividing correct values 1A radius (2)	M L2
3.2.2	Inner Height/*Binne hoogte* = 120 – 4 ✓MA = 116 cm ✓A	1MA subtracting 4 1A correct inner height AO full marks (2)	M L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.2.3	Inner Lenght/*Lengte* = 120 – 4 = 116 Inner Raduis/ = 24 – 2 = 22 ✓MA ✓C Volume = 3,142 × 0,22^2 × 1,16 ✓SF = 0,1764m^3 ✓CA = 0,1764 × 1 000 ✓C = 176,40 = 180 liters ✓R	**CA from 3.2.2** 1MA subtracting the foam rubber 1C converting cm to m 1SF substitution into formula 1CA volume in m^3 1C converting m^3 to litre 1R volume of the geyser (6)	M L3
3.2.4	✓C Weight/*Gewig* = 180 kg + 14 kg ✓RT = 194 kg ✓CA	**CA from 3.2.3** 1C converting litre to kilograms 1RT adding empty geyser weight 1CA weight of the filled geyser (3)	M L2
			[26]

QUESTION/*VRAAG* 4 [37 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.1.1 *	Ratio/*Verhouding* = 4 : 6 ✓RT ✓S = 2 : 3 ✓CA	1RT in correct order 1S dividing both sides by 2 1CA simplest form (3)	M&P L1
4.1.2	Difference/*Verskil* = 12,8 – 8,8 = 4 ✓MA $= \frac{4}{12,8} \times 100$ ✓MA = 31,25% ✓CA **OR** $= \frac{8,8}{12,8} \times 100$ ✓MA = 68,75 = 100 – 68,75 ✓MA = 31,25% ✓CA	1MA calculating the difference 1MA percentage calculation 1CA percentage answer NPR (3)	M&P L2
4.1.3	Western side/ *Westelike kant* ✓✓RT	2RT reading from plan (2)	M&P L2
4.1.4	Morning sun/*Oggendson* ✓RT The bedrooms are situated on the east side where the sun rises. *Die slaapkamers is aan die oostelike kant geleë waar die son opkom* ✓✓O	1RT conclude from plan 2O correct direction and sunrise (3)	M&P L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.1.5	✓MA Measure/*Meet* = 168 mm ✓C Scale/*Skaal* = 168 : 12 000 ✓MA = 1:71.428 ✓MA = 1 : 71 ✓R	1MA correct length 1MA correct order 1C converting m to mm 1MA method with accuracy 1R scale of the plan Range 167-169 (5)	M&P L3
4.1.6 *	✓SF ✓RT 18,3 m^2 = 6,1 × widht/*breedte* ✓MA Widht = 18,3 ÷6,1 ✓MA = 3 ✓CA **OR** ✓SF Area/*oppervlakte* = 6,1 × 4 ✓RT = 24,4m^2 ✓MA = 24,4 > 18,3 ✓MA ✓CA No, he is not correct/*Nee, hy is nie korrek nie* ✓O	1SF substitution 1RT correct area of the dining room 1MA correct method 1MA changing the subject 1CA length 1O correct conclusion (6)	M L4
4.2.1	✓C Tile lenght/*Teëllengte : 3*04 ÷ 1000 = 0,304m Area/*Oppervlak* = 0,304m^2 ✓MA = 0,0924 m^2 ✓R	1C converting mm to m 1MA calculating area 1R rounded value (3)	M L2
4.2.2	Area/*Oppervlakte* = 27,8 Tiles/*Teëls* = 27,8 ÷ 0,0924 ✓MA = 300,87 ✓CA = 300,87 × 1,05 ✓MA = 316 ✓CA = 316 ÷ 6 tiles/box *teëls/bokes* ✓M = 53 ✓CA OR = 300,87 x 1,05 = 315 = 315 ÷ 6 tiles/box *teëls/boks* = 52,5 = 53	**CA from 4.2.1** 1MA dividing by 0,0924 1CA amount of tiles 1MA percentage increase 1CA amount of increased tiles 1M dividing by 6 1CA total boxes **Also Accept** (6)	M L3

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.2.3	Adhesive/*Teëlsement* = 27,8 ÷ 6m^2 ✓MA = 4,6 bags/*sakke* ✓CA = 5 ✓CA Cost/*Koste* = R89,90 × 5 = R449,50 ✓CA = R449,50 × 1,15 ✓MA = R516,93 No his budget is not enough/*Nee sy begroting is nie genoeg nie.* ✓O	1MA dividing by 6 1CA number of bags needed 1CA cost of 5 bags 1MA VAT inclusive calculation 1CA cost 1O opinion Also accept R516,90 (6)	M F L4
			[37]

QUESTION/VRAAG 5 [33 MARKS/PUNTE]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
5.1.1	Namib-Naukluft ✓✓RT	2RT reading from maps (2)	M&P L1
5.1.2	Okahandja ✓✓RT	2RT reading from map (2)	M&P L1
5.1.3	Litres/*Liters* = $55 \times \frac{396}{100}$ ✓RT ✓MA = 217,8 ✓CA	1RT values 55 and 396 1MA multiply by 396 1CA number of litres (3)	M L2
5.1.4 (a)	To refuel / *brandstof ingooi* To check the cargo/*Vrag inspeksie* To refresh/*Om te verfris* Traffic Roadblock/*Verkeersstop* To use the tiolet/*Tiolett te gebruik* Tyre burst/*Wiel bars* He drove almost half of the total distance so he needs a rest/*Hy het amper die helfte van die totale afstand gery so hy het rus nodig.* ✓✓O	2O any correct opinion (2)	M&P L4
5.1.4 (b)	Time/*tyd* = $\frac{396km}{72km/h}$ ✓MA = 5,5 hours/*uur* ✓SF = 5 hours 30 min ✓CA Arrival Time/*Aankomstyd*: H = 5,5 + 0,25 (15 min) ✓MA = 5,75 (5 hours 45 min) = 8 hours 30 min + 5 hours 45 min = 14:15 min. ✓CA No, he is wrong./*Nee, hy is verkeerd.* ✓O	1MA changing subject of formula 1SF correct substitution 1CA speed calculated 1MA adding 15 min 1CA arrival time 1O correct opinion (6)	M L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
5.2.1 *	Circumference of a circle/ $= \frac{70 \times 2}{100} \times 3{,}142$ ✓C ✓SF *Omtrek van sirkel* = 4,3988 m ✓CA **OR** = 2 × 3,142× 70 ✓SF = 439,88 cm = 439,88 ÷ 100 ✓C = 4,3988 m ✓CA	1C converting diameter 1SF correct substitution 1CA circumference (3)	M L2
5.2.2	Lenght/*Lengte* = 75,60 ÷ $0{,}6^2$ ✓SF = 210 feet/*voet* ✓CA = 0,3048 × 210 ✓C = 64,008m ✓CA No, he is not correct/*Nee, hy is nie korrek nie* ✓O	1SF correct substitution 1CA answer in feet 1C converting feet to metre 1CA length in m 1O opinion (5)	M L4
5.2.3	It is easier to roll To protect the copper cable In order to cover the reel with wood or plastic Loading and off loading ✓✓O	2O marks for any correct opinion (2)	M L4
5.3.1	Lenght/*Lengte* = 15,8 ÷1,5 = 10,5 ✓RT Widht/*Breedte* = 2,5 ÷1,15 = 2.17 ✓MA ✓R ✓M Total reels/*Totaal tolle* = 10 × 2 = 20 ✓CA	1RT Values 15,8 and 2,5 1MA dividing by 1,15 1R rounded values 1M multiplying 1CA number of reels (5)	MP L2
5.3.2	✓MA Length/*Lengte* : 1,5m × 10 = 15m ✓MA : (15,8 – 15) m = 0,8 m ✓CA	**CA from 5.3.1** 1MA multiply length by 10 1MA subtracting the reel length 1CA remaining length (3)	M L2
			[33]
		TOTAL/*TOTAAL*:	**[150]**

NOTE/LET WEL:

1.1.1	A map of a section of a travelling route showing distances between towns as Straight lines/*'n Kaart van 'n gedeelte van 'n reisroete wat afstande tussen dorpe as reguit lyne aandui.*	Full marks for the written explanation
1.1.2	A prism that is named after the 3-dimensional shape that has rectangles as its faces or base / *'n Prisma wat genoem word na die 3-dimensionele vorm wat reghoeke as sy vlakke of basis het.*	
1.1.3	A unit of volume measurement that's 1 metre wide, 1 metre in height, and 1 metre in depth / *'n Eenheid van volumemeting wat 1 meter breed, 1 meter hoog en 1 meter diep is.*	
1.2.1	Accept 753 calculated	1 out of 3
1.2.2	Accept 750 / 60 and 400 devided by 10 (Convertion mark)	1 out 2
1.2.3	$\frac{8}{15}$ in fraction form	full marks
1.2.5	Impossible	full marks
2.2.1	If the candidates used the different names irrespective of the language paper. e.g If the afrikaans learners wrote Subway street OR the English learners wrote Metrostraat	full marks
3.1.1	Charging Time = $8 \times 1,5$ ✓MA *Herlaai tyd* = 12 -10 ✓CA = 2 = 24 ÷ 2 = 12 days	2 out of 3
4.1.1	Ratio/*Verhouding* = 4 : 5 ✓RT ✓CA	2 out of 3