education

Department of Education
FREE STATE PROVINCE

PREPARATORY EXAMINATION

GRADE 12

MATHEMATICAL LITERACY P2

SEPTEMBER 2025

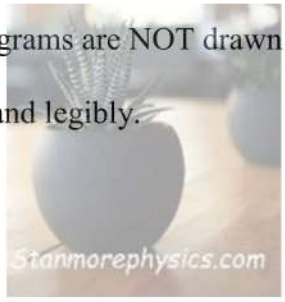
MARKS: 150

TIME: 3 HOURS

This question paper consists of 11 pages and a 17-page SPECIAL ANSWER BOOK.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.
2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.
3. Number the answers correctly according to the numbering system used in this question paper.
4. You may use an approved calculator (non-programmable and non-graphical) unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT drawn to scale unless stated otherwise.
9. Write neatly and legibly.



QUESTION 1

1.1 Below is a list of explanations or definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	The amount of space occupied by a 3-D object.
B	The base unit of mass in the metric system is equal to 100 grams.
C	A plan that shows the length and width of an object.
D	The amount of matter or material in an object.
E	The length of the space between two places or points.
F	The total length of the boundary that encloses a geometric shape.
G	The base unit of mass in the metric system is equal to 1 000 grams.
H	The maximum amount that a container can hold.

Use the information above to write down the letter of the explanation or definition (A to H) of EACH of the following concepts:

1.1.1 Two-dimensional plan (2)

1.1.2 Capacity (2)

1.1.3 Kilogram (2)

1.1.4 Mass (2)

1.1.5 Distance (2)

1.2 Campuskey is one of the accommodations used by some students who study at the University of the Free State (UFS). ANNEXURE A in the ANSWER BOOK shows the plan for the two types of rooms found at this accommodation.

Use ANNEXURE A to answer the questions that follow.

1.2.1 Explain what 22 m^2 written next to type C/D means. (2)

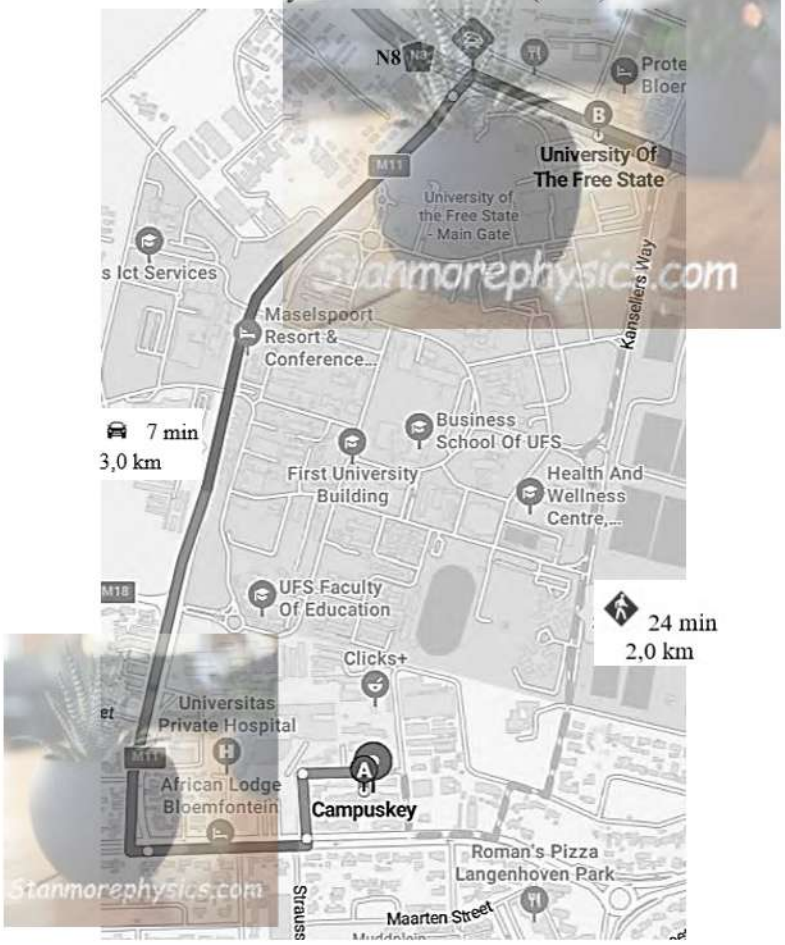
1.2.2 Write down the probability, as a percentage, of getting a bathtub in one of the bathrooms. (2)

1.2.3 Name the type of plan shown on ANNEXURE A. (2)

1.2.4 Jason's room is number twenty-five on the third floor. Write down the number appearing on his front door. (2)

1.2.5 Write down ONE difference between the two rooms shown in ANNEXURE A. (2)

1.3 The map below shows the location of the Campuskey student accommodation and the University of the Free State (UFS).



KEY

	Driving distance/time to UFS
	Walking distance/time to UFS

[Source:www.bing.com]

Use the map above to answer the questions that follow.

1.3.1 Convert the walking distance from the student accommodation to the university into meters. (2)

1.3.2 State whether the statement below is TRUE or FALSE.

The road passing by the university through point B is a national road. (2)

1.3.3 Mofenyi's last class ended at 07:25 in the evening. He walked back to the student accommodation and arrived at 07:49.

Write down his arrival time in a 24-hour format. (2)

1.3.4 Calculate how many more minutes a person will take to walk from Campuskey to the university than someone who drives. (2)

[28]

QUESTION 2

2.1 Pulane and her family planned a trip to Lydenrust Guest Farm near Lydenburg. They will travel from Johannesburg to meet other family members at Machadodorp, and from there, they will continue to their destination. ANNEXURE B in the ANSWER BOOK shows the route they will take to the guest farm.

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

2.1.1 Write down the number of provinces that can be seen on the map. (2)

2.1.2 Other family members will travel from the first town situated in the north-easterly direction from Machadodorp along the N4. Write down the name of this town. (2)

2.1.3 The distance from Machadodorp to the T-junction next to Bambi is 28 km. The family will take the R36 from the T-junction to the farm's turnoff. Calculate the distance from Machadodorp to the guest farm. (3)

2.1.4 Write down the name of the toll plaza along the N4 on the map. (2)

2.1.5 Write down the TWO provincial roads they will be travelling on to get to the guest farm. (2)

2.2 The farm owner has four houses that he uses to accommodate guests. The plan for one of the houses is shown in ANNEXURE C in the ANSWER BOOK.

Use the plan shown in ANNEXURE C to answer the following questions.

2.2.1 Write down the number of windows shown on the northern side of the house. (2)

2.2.2 One of the guests claimed that both bedrooms would receive sun in the morning. Is the claim true or false? (2)

2.2.3 Use the actual length shown on the map to determine the scale of the plan in the format 1 : ...
Round your answer to the nearest whole number. (4)

2.2.4 Pulane states that this is an open-plan design. Explain why she is correct. (2)

2.2.5 Possible elevation plans for the house are also shown in ANNEXURE C in the ANSWER BOOK.

(a) Explain the term *elevation plan.* (2)

(b) The elevations are indicated using letters A and B. Write down the elevation for letter A. (2)

[25]

QUESTION 3

3.1 Maureen, the owner of Khwezi Guest House, installed an electric geyser to save electricity. The horizontal electric geyser is shown in the picture below.

ELECTRIC HOT GEYSER (CYLINDER)

[Source: modernheat.co.za]

INFORMATION

- All dimensions shown are outer measurements
- The steel used to make the cylinder is 4 mm thick all around and at the bottom, but not the upper part.
- 1 m^3 = 1 000 ℓ
- The geyser cylinder can only be filled up to 98% of its capacity.

Use the information above to answer the questions that follow.

3.1.1 Complete the sentence below.

A … is an instrument used to measure the temperature of the water. (2)

3.1.2 The diameter of the cylinder, including the steel used to make it is 440 mm. Calculate the inner diameter of the cylinder. (2)

3.1.3 One of the employees at the guest house filled the cylinder up to 185 ℓ and claimed it was full as per the requirements. Show, through calculations, whether his claim is correct.

You may use the formula:

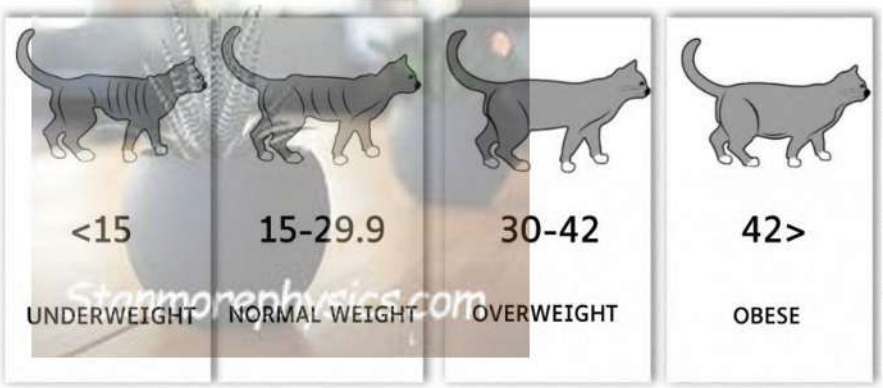
Volume of a cylinder = 3,142 × (radius)^2 × height (9)

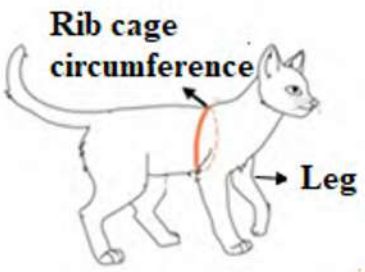
3.1.4 Tourists from the United States of America, accommodated at the Khwezi Guest House, told Maureen that she should keep the geyser's temperature at 140° F to save electricity. Determine the temperature in degrees Celsius.
You may use the formula: **°F – 32° = (1,8 × °C)** (3)

3.2 As for humans, maintaining a healthy weight for our pets is crucial and leads to happy and active lives. The body mass index can be used to determine a cat's weight status.

Below is a cat's BODY MASS INDEX status and the relevant formula for calculation.

WEIGHT STATUS



FORMULA	MEASUREMENTS
Body mass index of a cat = $\frac{\text{circumference}}{0{,}6466} - \frac{\text{leg length}}{0{,}9156} - \text{leg length}$	

NOTE:

- **Circumference = rib cage circumference of a cat**
- **All measurements are in cm**

[Source: worldanimalfoundation.org]

Use the information above to answer the questions that follow.

3.2.1 Explain the term circumference using the context given above. (2)

3.2.2 Write down the acronym for the term *BODY MASS INDEX*. (2)

3.2.3 Maureen's cat has a rib cage circumference of 35,2 cm and a leg length of 5,1 cm. Calculate the body mass index of her cat and write down its weight status. (4)

3.2.4 Suggest ONE way for Maureen to help her cat achieve and maintain a healthy normal weight. (2)

[26]

QUESTION 4

4.1 Below is a picture of a table tennis table with all the measurements.

[Source: freesportparks.hu]

NOTE: The net stretches 0,153 m beyond the table's width on both sides.

Use the information above to answer the questions that follow.

4.1.1 Calculate, in m, the perimeter of the table tennis table.

You may use the following formula

Perimeter = 2 × (length + width) (3)

4.1.2 Determine the total length of the net. (3)

4.1.3 Write down the ratio of the height of the table tennis table to the height of the net. Give your answer in the format 1: … (3)

4.1.4 The height of the table tennis table must be reduced by 100 mm for boys aged 7 to 8 to be able to play table tennis. Calculate the new table height in meters (m). (3)

4.1.5 The table below shows the number of boys and girls from one school participating in a table tennis competition.

	Grade 9A	**Grade 9B**	**Grade 9C**
Boys	4	5	3
Girls	3	2	4

(a) Calculate how many more boy players than girl players participated in the competition. (3)

(b) Determine the probability, as a decimal number, of randomly selecting a grade 9 B-girl who participated in the competition. (3)

4.2 The company that manufactures balls to play table tennis uses the containers below to package them for delivery.

CONTAINER 1	CONTAINER 2
	 **Diameter of container = 5 inches**

NOTE in = inches

Use the information above to answer the questions that follow.

4.2.1 Determine, with calculations, which container has the biggest volume.

Use the following formulae:

Volume of a rectangular prism = length × width × height

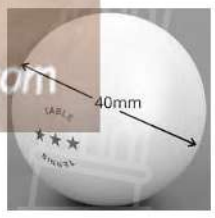
Volume of a cylinder = π × radius^2 × height where **π = 3, 142** (6)

4.2.2 Show that the surface area of CONTAINER 2 is 168,8825 in^2.

You may use the formula:

SA = 2 × π × radius × height + π × radius^2 **where π = 3, 142** (3)

4.2.3 The dimensions of the table tennis ball are given in the picture.



NOTE: 1 inch = 25,4 mm

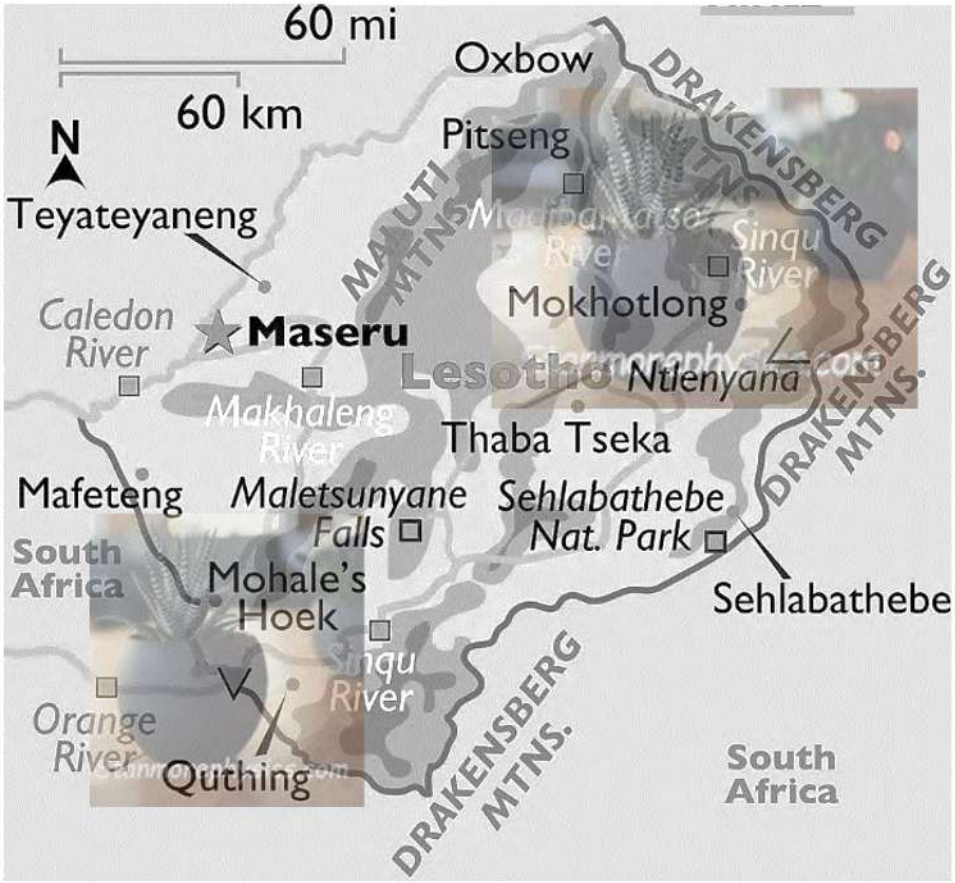
(a) Convert the diameter of the ball to inches. Round your answer to TWO decimal places. (2)

(b) The company manager claimed that CONTAINER 1 will hold more balls than CONTAINER 2. Verify showing ALL calculations whether his statement is CORRECT. (9)

[38]

QUESTION 5

5.1 The map below shows the country surrounded by South Africa (SA). This country has an area of 30 355 km^2 with a series of foothills and plateaus fronting mountains.



[Source: worldatlalas.com]

Use the information and the map above to answer the questions that follow.

5.1.1 Write down the name of the country surrounded by SA. (2)

5.1.2 Maseru is one of the largest districts which covers 14,1% of the entire country's area. Calculate the area of this district. Round your answer to the nearest whole number. (3)

5.1.3 Write down the name of the scale used to draw the map and give one advantage of this scale. (2)

5.1.4 The total population of Lesotho is 2 125 268. Write down this number in words. (2)

5.1.5 Write down the general direction of Sehlabathebe from Pitseng. (2)

5.1.6 One family travelled from Cape Town in South Africa to visit Lesotho. They left their home at 10:00 a.m. and arrived at Karoo National Park where they stayed overnight. On the second day, they left the Park at 09:00 a.m. and drove 8 hours and 19 minutes to their destination.

(a) Explain the meaning of the abbreviation a.m. (2)

(b) They took 3 breaks of 65 minutes, 45 minutes and 49 minutes each on their way during the second day. Determine their time of arrival on the second day. (6)

5.2 The car they are travelling with has a petrol tank capacity of 80 litres. Fuel prices are shown in the table below.

FUEL COST (in R/ℓ)	
INLAND	**COASTAL**
R22,86	R22,07

Mr Sethole claimed it would cost them 3% more if they filled up the car's tank inland instead of at the coast. Verify whether his claim is valid. (5)

5.3 Lesotho is well known for its beautiful hats and blankets. Lehakwe is a company that manufactures and sells hats and blankets. Mr Maphatsoe, a worker for the company regularly travels from Maseru to Pitseng. The distance between Maseru and Pitseng is 121 km.

LESOTHO HAT	LESOTHO BLANKET
	

NOTE: 2,5% discount is given for a purchase of more than R15 000.

5.3.1 It takes Mr Maphatsoe 2 hours and 20 minutes to travel from Maseru to Pitseng. He stops to rest for 15 min. Calculate the average speed, in km/h, at which Mr Maphatsoe was travelling.

You may use the formula: **Distance = speed × time** (5)

5.3.2 A total payment of R23 887,50 was made for blankets and hats purchased after the discount. Calculate the original amount payable before the discount. (4)

[33]

TOTAL: 150

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GRADE 12 – ANSWER BOOK 2025 *Confidential*

Preparatory Examination
Answer Book

Sequence No. on mark sheet

SURNAME													

FULL NAME (s)																

BOOK NUMBER		OF		BOOKS

SUBJECT CODE	M	L	I	T	Z

PAPER NUMBER	2

SUBJECT NAME	MATHEMATICAL LITERACY

MARKER					MODERATOR'S INITIALS IN RELEVANT BLOCK											
Question	Marks	Marker's Code & Initials	Marks	SM	Marks	DCM	Marks	CM	Marks	IM	Marks	EM
1												
2												
3												
4												
5												
TOTAL												

READ INSTRUCTIONS ON THE NEXT PAGE.

Teacher signature: …… Date: ……

This answer book consists of 17 pages.

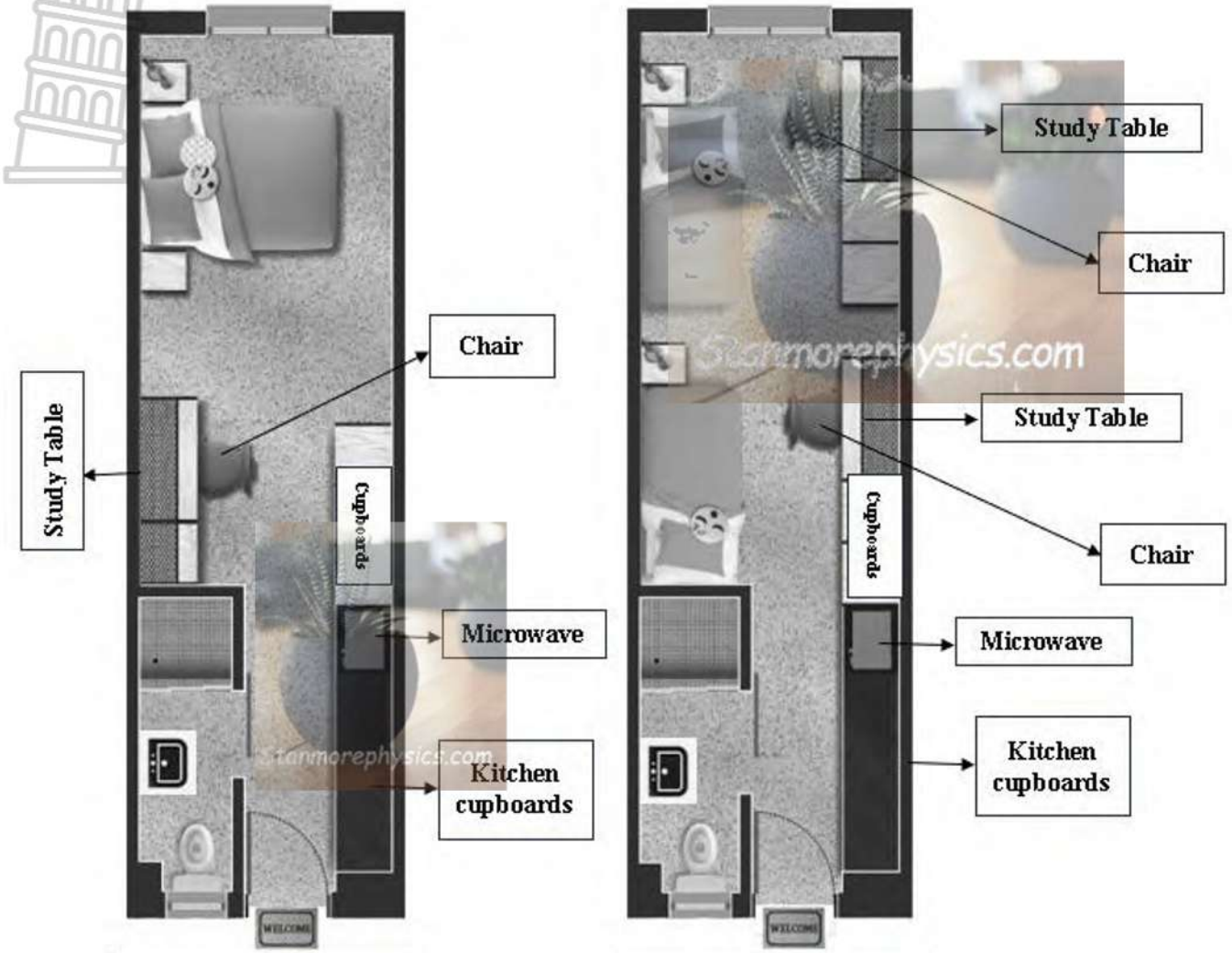
FOLLOW THESE INSTRUCTIONS CAREFULLY.

1. Clearly write your SURNAME and NAME(s) in the space provided. ONE letter per block.
2. Answer ALL the questions in the spaces provided.
3. No pages may be torn from this answer book.
4. Read the instructions which may be given in each examination paper.
5. Candidates may not retain an answer book or remove it from the examination room.
6. Answers MUST be written in black/blue ink as distinctly as possible. Pencils may be used for drawing graphs.
7. Do not write in the margins.
8. If you require additional space for your answers:
   - 8.1 Use the additional space provided at the end of the answer book.
   - 8.2 When answering a question in additional space, indicate clearly the question number in the column on the left-hand side.
9. Draw a neat line through any work that must not be marked.

QUESTION 1

1.1	**Solution**	**Marks**
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)

1.2 ANNEXURE A



KEY

Toilet		Basin	
Shower		Door	

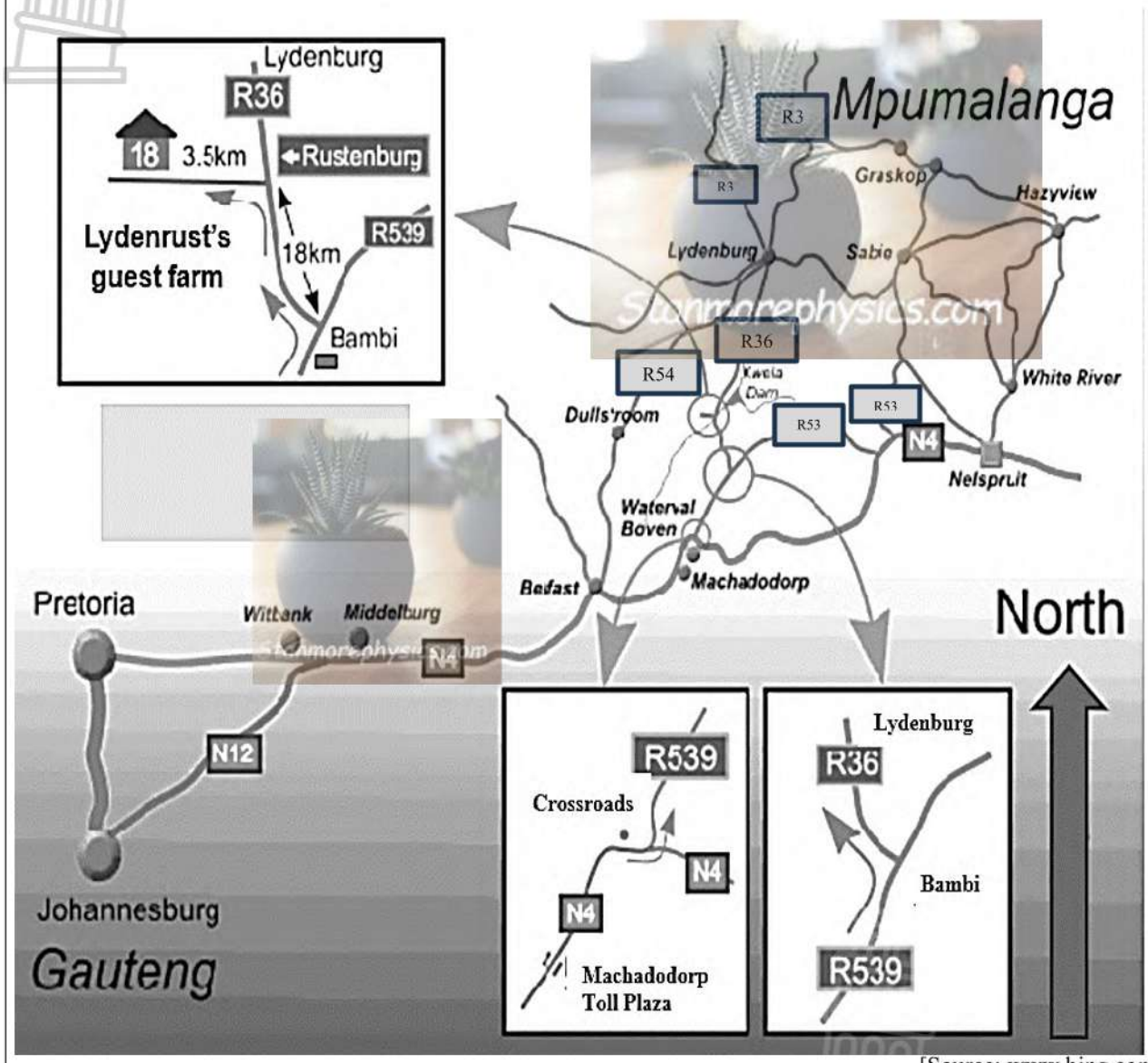
[Adapted from: www.campuscentral.com]

	Solution	Marks
1.2.1		(2)
1.2.2		(2)
1.2.3		(2)
1.2.4		(2)
1.2.5		(2)
1.3.1		(2)
1.3.2		(2)
1.3.3		(2)
1.3.4		(2)
		[28]

QUESTION 2

2.1 ANNEXURE B

DIRECTIONS TO LYDENRUST GUEST FARM



[Source: www.bing.com]

2.1	**Solution**	**Marks**
2.1.1		(2)
2.1.2		(2)
2.1.3		(3)
2.1.4		(2)
2.1.5		(2)

2.2 ANNEXURE C

HOUSE PLAN AT THE GUEST FARM

ELEVATION PLANS

A

B

[Source: www.dashcapitals.co.za]

2.2	**Solution**	**Marks**
2.2.1		(2)
2.2.2		(2)
2.2.3		(4)
2.2.4		(2)
2.2.5 (a)		(2)
2.2.5 (b)		(2)
		[25]

QUESTION 3

3.1	Solution	Marks
3.1.1		(2)
3.1.2		(2)
3.1.3		(9)
3.1.4		(3)

3.2	**Solution**	**Marks**
3.2.1		(2)
3.2.2		(2)
3.2.3		(4)
3.2.4		(2)
		[26]

QUESTION 4

4.1	Solution	Marks
4.1.1		(3)
4.1.2		(3)
4.1.3		(3)
4.1.4		(3)
4.1.5 (a)		(3)
4.1.5 (b)		(3)

4.2	**Solution**	**Marks**
4.2.1		(6)
4.2.2		(3)
4.2.3 (a)		(2)

4.2.3 (b)		(9)
		[38]

QUESTION 5

5.1	Solution	Marks
5.1.1		(2)
5.1.2		(3)
5.1.3		(2)
5.1.4		(2)
5.1.5		(2)
5.1.6 (a)		(2)
5.1.6 (b)		(6)

	Solution	Marks
5.2		(5)
5.3.1		(5)
5.3.2		(4)
		[33]

TOTAL: 150

RE-MARK/RE-CHECK				
Question	Marks			Initials
1				
2				
3				
4				
5				
TOTAL				
HASH TOTAL				

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PREPARATORY EXAMINATION
VOORBEREIDENDE EKSAMEN

GRADE/*GRAAD* 12

MATHEMATICAL LITERACY P2
WISKUNDIGE GELETTERDHEID V2

SEPTEMBER 2025

MARKS/*PUNTE*: 150

MARKING GUIDELINES/*NASIENRIGLYNE*

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/a graph/document/diagram/*Lees vanaf tabel/'n grafiek/dokument/ 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 correct rounding/*Geen penalisasie vir korrek afronding nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*
NPU	No penalty for unit/*Geen penalisasie vir eenheid nie*

These marking guidelines consist of 12 pages.
Hierdie nasienriglyne bestaan uit 12 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.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- General principle of marking: If the candidate makes one mistake, he/she loses one mark.

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.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *Die algemene beginsel van merk: as 'n leerder een fut maak verloor hy/sy een punt.*

QUESTION/*VRAAG* 1 [28 MARKS/*PUNTE*]		**ANSWER ONLY FULL MARKS**	
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
1.1.1	C ✓✓A A plan that shows the length and width of an object.✓✓	2A explanation (2)	MP L1 E
1.1.2	H ✓✓A The maximum amount that a container can hold✓✓	2A explanation (2)	M L1 E
1.1.3	G ✓✓A The base unit of mass in the metric system is equal to 1 000 grams. ✓✓	2A explanation (2)	M L1 E
1.1.4	D ✓✓A The amount of matter or material in an object. ✓✓	2A explanation (2)	M L1 E
1.1.5	E ✓✓A The length of the space between two places or points. ✓✓	2A explanation (2)	M L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.2.1	The area of the room is 22 m^2. ✓✓A *Die oppervlak van die kamer is 22 m^2*	2A explanation (2)	M L1 M
1.2.2	0% **OR/*OF*** zero percent ✓✓A	2A correct probability **NPU** (2)	P L1 E
1.2.3	Floor plan/*Vloerplan* ✓✓A **OR/*OF*** Layout plan/*Uitlegplan* ✓✓A	2A correct answer (2)	MP L1 E
1.2.4	325 ✓✓A	2A correct room number (2)	MP L1 E
1.2.5	The one has a double bed and the other one has two single beds./*Die een het 'n dubbelbed en die ander twee enkelbeddens.* ✓✓A **OR/*OF*** First room can accomodate one person, the second room can accomodate two people./*Eerste kamer kan een persoon akkomodeer. Die tweede kamer kan twee persone akkomodeer.* ✓✓A **OR/*OF*** The one has one study table, and the other one has two./*Die een het een studietafel en die ander een het twee.* ✓✓A **OR/*OF*** The one has one chair and the other one has two chairs./*Die een het een stoel en die ander een het twee.* ✓✓A **OR/*OF*** The one has one sidelamp and the other one has two sidelamps./*Die een het een lampie en die ander een het twee.* ✓✓A	2A correct difference (2)	MP L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
1.3.1	2 × 1 000 ✓MA = 2 000 m ✓A	1MA multiplied by 1000 1A correct answer **NPU** (2)	M L1 E
1.3.2	True/*Waar* ✓✓A	2A correct answer (2)	MP L1 E
1.3.3	19:49 ✓✓A	2A correct time format (2)	M L1 M
1.3.4	24 – 7 ✓MA = 17 min ✓A	1MA subtracting correct values 1A correct answer **NPU** (2)	M L1 E
		[28]	

QUESTION/*VRAAG* 2 [25 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
2.1.1	2 ✓✓A	2A correct answer (2)	MP L1 E
2.1.2	Nelspruit ✓✓A	2A correct town (2)	MP L2 E
2.1.3	✓RT 28 km + 18 km + 3,5 km ✓MA = 49,5 km ✓CA	1RT correct values 1MA adding values 1CA no of kilometres **NPU** (3)	MP L2 D
2.1.4	Machadodorp✓✓A	2A name of the toll plaza (2)	MP L1 E
2.1.5	✓A ✓A R539 and/*en* R36	1A 1st road 1A 2nd road (2)	MP L1 M
2.2.1	3 or three/*of drie* ✓✓A	2A number of windows (2)	MP L1 M
2.2.2	False/*Onwaar* ✓✓A	2A correct answer (2)	MP L4 M
2.2.3	Measured length/*gemete lengte* = 125 mm✓A 125 mm = 11,5 m ✓MCA ✓C 0,125 : 11,5 1: 92 ✓CA	1A measured value (accept 120 mm to 125 mm) 1MCA correct order of the ratio 1C conversion 1CA unit ratio (4)	MP L2 D
2.2.4	There is no wall between the kitchen and the living/lounge/dining/sitting room/*Daar is geen muur tussen die kombuis en die sitkamer/eetkamer nie.* ✓✓A	2A opinion (2)	MP L4 M
2.2.5 (a)	An elevation plan shows the side view of the outside of the building./*'n Aansigplan toon die sy-aansig van 'n gebou.*✓✓A	2A explanation (2)	MP L1 M
2.2.5 (b)	South Elevation/*Suidaansig* ✓✓A	2A correct elevation (2)	MP L2 M
		[25]	

QUESTION/*VRAAG* 3 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation *Verduideliking***	**T&L**
3.1.1	Thermometer/*Termometer* ✓✓A Accept: Thermostat	2A correct instrument (2)	M L1 M
3.1.2	440 mm – (4 mm × 2) ✓MA = 432 mm ✓CA	1MA subtracting double thickness 1CA simplification **AO** (2)	M L2 M
3.1.3	Diameter/*Middellyn*: 432 mm = 0,432 m ✓C Height/*Hoogte*: 1325 mm – 4 mm = 1321 mm✓A = 1,321 m Radius = $\frac{0,432}{2}$ = 0,216 ✓CA Volume = 3,142 × (radius)^2 × height/*hoogte* = 3,142 × (0,216 m)^2 × 1,321 m ✓SF ✓CA = 0,19364 m^3 × 1000 ✓C = 193,659 ℓ Then/*Dan*: 98% × 193,659 ℓ ✓MCA = 189,78 ℓ ✓CA His claim is not correct./*Sy stelling is nie korrek nie.*✓O **OR/*OF*** 185 ℓ = $\frac{185}{1000}$ m^3 = 0,185 m^3 ✓ Radius = $\frac{0,432}{2}$ = 0,216 ✓CA	**CA from 3.1.2** 1C conversion (mm to m) 1A height 1CA radius 1SF substitution into the formula 1CA answer 1C conversion (m^3 to ℓ) 1MCA calculating percentage 1CA number of litres 1O opinion 1C conversion (ℓ to m^3) 1CA radius	M L4 D

	Volume = 3,142 × (radius)^2 × height/*hoogte* 0,185 m^3 = 3,142 × (0,216)^2 × h ✓SF h = $\frac{0{,}185\ m^3}{0{,}146593152\ m^2}$ ✓MA h = 1,262 m ✓CA The given height of the geyser is Height/*Hoogte*: 1325 mm – 4 mm = 1321 mm = 1,321 m ✓A so: $\frac{98}{100}$ × 1,321 m ✓MCA = 1,294 ✓CA The statement is not correct. ✓O	1SF substitute into formula 1MA changing the subject of the formula 1CA simplification 1A determine height 1MCA calculating 98% of the height 1CA simplify height 1O correct opinion (9)	
3.1.4	°F – 32° = (1,8 × °C) 140° F – 32 = (1,8 × °C) ✓SF 108 = 1,8 × °C °C = $\frac{108}{1{,}8}$ ✓MA = 60° C ✓CA	1SF correct substitution 1MA changing the subject of the formula 1CA simplification (3)	M L2 M
3.2.1	✓✓A The total length around the rib cage of the cat./*Die totale lengte rondom van die kat se ribbekas.*	2A explanation (2)	M L1 E
3.2.2	BMI/*LMI*✓✓A	2A correct answer (2)	M L1 E
3.2.3	BMI/*LMI* = $\frac{35{,}2\ cm}{0{,}6466}$ – $\frac{5{,}1\ cm}{0{,}9156}$ – 5,1 cm ✓SF = 54,43 – 5,57 – 5,1 ✓S = 43,77 ✓CA Obese/*vetsugtig* ✓O	1SF substitution 1S simplification 1CA answer 1O opinion **NPR** (4)	M L2 D

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.2.4	Reduce the amount of food./*Verminder die hoeveelheid kos.* ✓✓O **OR/*OF*** Give low-calorie/healthy food./*Gee lae kaloriekos/gesonde kos.* **OR/*OF*** Cut back on treats./*Verminder lekkernye.* **OR/*OF*** Take the cat for walks/*Gaan stap met die kat.* (2)	2O opinion	M L4 E
		[26]	

QUESTION/*VRAAG* 4 [38 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.1.1	Perimeter = 2 × (length + width)/ *Omtrek = 2 × (lengte + breedte)* = 2 × (1,525 m + 2,74 m)✓SF = 8,53 m✓CA✓A	 1SF correct substitution 1CA correct answer 1A unit **NPR** **AO** (3)	M L2 E
4.1.2	✓MA Length/*Lengte* = 0,153 m × 2 + 1,525 m ✓MA = 0,306 m + 1,525 m = 1,831 m ✓CA	 1MA multiplied by 2 1MA adding 1CA correct answer **NPU** **NPR** **AO** (3)	M L2 M
4.1.3	✓RT 0,76 : 0,153 ✓A 1 : 0,201✓CA	 1RT correct values 1A order 1CA answer **NPR** **AO** (3)	M L2 M
4.1.4	0,76 m = 760 mm ✓C 760 mm – 100 mm ✓MA = 660 mm = 0,7 m **or/*of*** 0,66 m **or/*of*** 0,67 m✓A **OR/*OF*** 100 mm = 0,1 m ✓C 0,76 m – 0,1 m = 0,66 m = 0,7 m **or/*of*** 0,66 m **or/*of*** 0,67 m✓A	 1C conversion 1MA subtraction A correct answer 1C conversion 1MA subtraction A correct answer **NPU** **NPR** (3)	L2 M E

Q/*V*	Solution/*Oplossing*	Explanation *Verduideliking*	T&L
4.1.5 (a)	Boys/*Seuns* = 12✓A Girls/*Meisies* = 09✓A 12 – 09 = 03 ✓CA more players were boys/*meer spelers was seuns*	1A number of boys 1A number of girls 1CA answer **AO** (3)	P L2 E
4.1.5 (b)	✓A $\frac{2}{21}$ = 0,095238095✓CA ✓A	**CA Total from 4.1.5(a)** 1A numerator 1A denominator 1CA answer as decimal number **NPR** (3)	P L2 M

Q/*V*	Solution/*Oplossing*	Explanation *Verduideliking*	T&L
4.2.1	Container/*Houer* 1 Volume = length × width × height *Volume = lengte × breedte × hoogte* = 3,5 in × 2 in × 9,5 in ✓SF = 66,5 in^3 ✓CA Container/*Houer* 2 Volume = π × radius^2 × height/*hoogte* = 3,142 × (5 ÷ 2)^2 × 9,5 ✓SF ✓A = 3,142 × 2,5^2 × 9,5 = 186,56 in^3 ✓CA Container 2/Cylinder/*Houer 2/Silinder* ✓O	1SF correct substitution 1CA correct answer 1SF substitution 1A radius 1CA answer 1O opinion **NPU** **NPR** (6)	M L4 M
4.2.2	SA = 2 × π × radius × height + π × radius^2 *BO = 2 ×* π *× radius × hoogte +* π *× radius*^{2} = 2 × 3,142 × 2,5 × 9,5 + 3,142 × (2,5)^2 ✓SF = 149,245 + 19,6375 ✓S = 168,8825 in^2 ✓CA	1SF substitution 1S simplification 1CA answer **NPU** **NPR** (3)	L3 M M

Q/V	Solution/*Oplossing*	Explanation *Verduideliking*	T&L
4.2.3 (a)	1 inch/*dm* = 25,4 mm ? = 40 mm $= \frac{40\text{ mm}}{25{,}4\text{ mm}}$ ✓MA = 1,57 in/*dm* ✓CA	1MA dividing 1CA correct answer **NPU** **AO** (2)	M L2 M
4.2.3 (b)	**CONTAINER 1/*HOUER 1*** Height/*Hoogte* $\frac{9{,}5}{1{,}57}$ ✓MA = 6,050955 ✓CA = 6 ✓R Width/*breedte*: $\frac{2}{1{,}57} = 1{,}27$ = 1 Length/*lengte*: $\frac{3{,}5}{1{,}57} = 2{,}22$ = 2 ✓CA No. that can be packed/*Aantal wat gepak kan word:* ✓MCA 6 × 1 × 2 = = 12 balls/*balle* ✓CA **CONTAINER 2/*HOUER 2*** Height/*Hoogte*: $\frac{9{,}5}{1{,}57} = 6$ Diameter/*Middellyn*: $\frac{5}{1{,}57} = 3$✓CA No that can be packed/*Aantal wat gepak kan word:* 6 × 3 = 18 balls/*balle* ✓CA Statement NOT VALID/*Stelling is NIE WAAR NIE* ✓O	**CA from 4.2.3(a)** 1MA dividing 1CA answer 1R rounding down 1CA correct answer 1MCA multiplying 1CA no of balls 1CA answer 1CA no of balls 1O conclusion (9)	L4 MP D
		[38]	

QUESTION/*VRAAG* 5 [33 MARKS/*PUNTE*]

Q/*V*	**Solution/*Oplossing***	**Explanation** ***Verduideliking***	**T & L**
5.1.1	Lesotho ✓✓A	2A name of the country (2)	MP L1 E
5.1.2	✓RT 30 355 × 14,1 % ✓MA = 4 280,055 km^2 ≈ 4 280 km^2 ✓R	1RT total area 1MA multiplying by % 1R correctly rounded area **NPU** **AO** (3)	MP L2 E
5.1.3	Bar Scale ✓A ✓A When the map enlarges/reduces the scale also enlarges/reduces. *Grafiese skaal* *Wanneer die kaart vergroot/verklein sal die skaal ook vergroot/verklein.*	1A name of the scale 1A advantage (2)	MP L2 M
5.1.4	Two million one hundred and twenty five thousand two hundred and sixty eight./*Twee miljoen een honderd en vyf en twintig duisend twee honderd agt en sestig.* ✓✓A	2A correct answer (2)	MP L1 E
5.1.5	South East/SE/*Suidoos/SO* ✓✓A	2A direction (2)	MP L2 M
5.1.6 (a)	Before noon/*Voormiddag* ✓✓A Accept: Time in the morning	2A correct answer (2)	M L2 E
5.1.6 (b)	Driving time/*Rytyd* = 8 hrs and 19 min ✓MA 09:00 + 8 hrs and 19 min = 17:19 ✓CA Breaks/*Stoppe* = 65 min + 45 min + 49 min	1MA adding duration to correct beginning time 1CA correct final time	M L3 M

	= 159 min ✓CA $\frac{159}{60}$ = 2,65 = 2 hrs/*uur* and/*en* 39 min ✓C Arrival time/*Aankomstyd*: = 17:19 + 2 hrs and 39 min✓MCA = 19:58 ✓CA **OR/*OF*** Total time/*totale tyd* ✓M = 8 hrs 19 min + 65 min + 45 min + 49 min = 8 hrs 178 min ✓CA 178 min = 2 hrs 58 min ✓C ∴ Total time = 10 hrs 58 min ✓CA 09:00 + 10 hrs 58 min ✓MCA = 19:58 ✓CA **OR/*OF*** ✓M ✓M 9:00 + 8:19 + 0:65 + 0:45 + 0:49 = 17:178 min ✓CA ✓C 178 min = 2 hrs 58 min 17:00 + 2 hrs 58 min ✓MCA = 19:58 ✓CA	1CA total time for breaks 1C conversion 1MCA adding 1CA arrival time 1M adding time 1CA answer 1C conversion 1CA total time 1MCA adding to correct beginning time 1CA arrival time 1M adding to correct beginning time 1M adding time 1CA answer 1C conversion 1MCA adding 1CA total time (6)	

Q/*V*	Solution/*Oplossing*	Explanation *Verduideliking*	T & L
5.2	Inland cost/*binnelandse koste* = 80 litres × R22,86 = R1 828,80 ✓CA Coastal cost/*Kuskoste* = 80 litres × R22,07 = R1 765,60 ✓MCA % diff/*verskil* = $\frac{\text{R1 828,80} - \text{R1 765,60}}{\text{R1 828,80}} \times 100\%$ ✓MCA = 3,46 % ✓CA NOT VALID/*NIE GELDIG NIE* ✓O **OR/*OF*** ✓A % diff/*verskil* = $\frac{\text{R22,86} - \text{R22,07}}{\text{R22,86}} \times 100\%$ ✓MA ✓A = 3,46 % ✓CA NOT VALID/*NIE GELDIG NIE* ✓O **OR/*OF*** ✓A $\frac{1\,765,60}{1828,80} \times 100\%$ ✓MA ✓A = 96,54 100% - 96,54 = 3,46%✓CA NOT VALID/*NIE GELDIG NIE* ✓O **OR/*OF*** ✓A	1CA calculating amounts (R1 828,80 and R1 765,60) 1MCA numerator 1MCA denominator 1CA correct % 1O conclusion 1A numerator 1A denominator 1MA multiplied by 100% 1CA correct % 1O conclusion 1A numerator 1A denominator 1MA multiplied by 100% 1CA correct % 1O conclusion 1A numerator 1A denominator 1MA multiply by 100%	F L4 M

	$\frac{22,07}{22,86} \times 100\%$ ✓MA ✓A = 96,54% 100% - 96,54 = 3,46%✓CA NOT VALID/*NIE GELDIG NIE* ✓O	1CA correct % 1O conclusion (5)	
5.3.1	Driving time/*Reistyd* = 2hr 20 min – 15 min = 2 hr 05 min ✓A $2 \text{ hr} + \frac{05}{60}$ = 2,083333.....✓C 121 km = speed × 2,083333…..✓SF Speed/*Spoed* = $\frac{121 \text{ km}}{2,0833333...}$ ✓MA = 58,08 km/h ✓CA	1A driving time 1C conversion 1SF substitution 1MA changing the subject 1CA average speed **NPR** (5)	M L3 M

Q/*V*	Solution/*Oplossing*	Explanation *Verduideliking*	T&L
5.3.2	R23 887,50 = 97,5% ? = 100% Original amount/*Oorspronklike bedrag* ✓MA = R23 887,50 × $\frac{100}{97,5}$ ✓A ✓A = R24 500 ✓CA **OR/*OF*** 100% – 2,5% = 97,5% = 0,975 ✓MA Original amount/*Oorspronklike bedrag* = $\frac{\text{R23 887,50}}{0,975}$ ✓A ✓A = R24 500,00 ✓CA **OR/*OF*** 1 – 0,025 = 0,975 ✓MA Original amount/*Oorspronklike bedrag* = $\frac{\text{R23 887,50}}{0,975}$ ✓A ✓A = R24 500,00 ✓CA	1MA multiply with correct amount 1A numerator 1A denominator 1CA amount 1MA correct % 1A numerator 1A denominator 1CA amount 1MA difference 1A numerator 1A denominator 1CA amount (4)	F L2 D
		[33]	

TOTAL/*TOTAAL*: 150