



Northern Cape Department of Education

**PROVINSIALE VOORBEREIDENDE EKSAMEN/
PROVINCIAL PREPARATORY EXAMINATION**

GRAAD/GRADE 12

**WISKUNDIGE GELETTERDHEID/
MATHEMATICAL LITERACY**

VRAESTEL/PAPER 2

SEPTEMBER 2026

Stanmorephysics.com

PUNTE/MARKS: 150

TYD/TIME: 3 uur/hours

**Hierdie vraestel bestaan uit 14 bladsye en
'n SPESIALE ANTWOORDEBOEK van 23 bladsye./
This question paper consists of 14 pages and
a SPECIAL ANSWER BOOK of 23 pages.**

INSTRUCTIONS AND INFORMATION

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



QUESTION 1

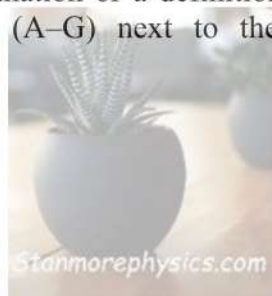
- 1.1 TABLE 1 below contains a list of statements and definitions of concepts used in Mathematical Literacy.

TABLE 1: STATEMENTS AND DEFINITIONS OF CONCEPTS

LETTER	DEFINITION
A	A symbolic presentation of selected characteristics of a place drawn on a flat surface
B	Something used as an example to follow and imitate a three-dimensional figure or object
C	A system of measurement that uses metres, litres, kilograms, etc.; all the units are divisible by 10
D	An instrument that is used to measure the weight of an object
E	The measure between two points in a straight line
F	A series of trails performed one after the other
G	The result of an event

Use TABLE 1 above and match an explanation or a definition with EACH of the concepts below. Write only the letter (A–G) next to the question numbers (1.1.1 to 1.1.4), e.g. 1.1.5 H.

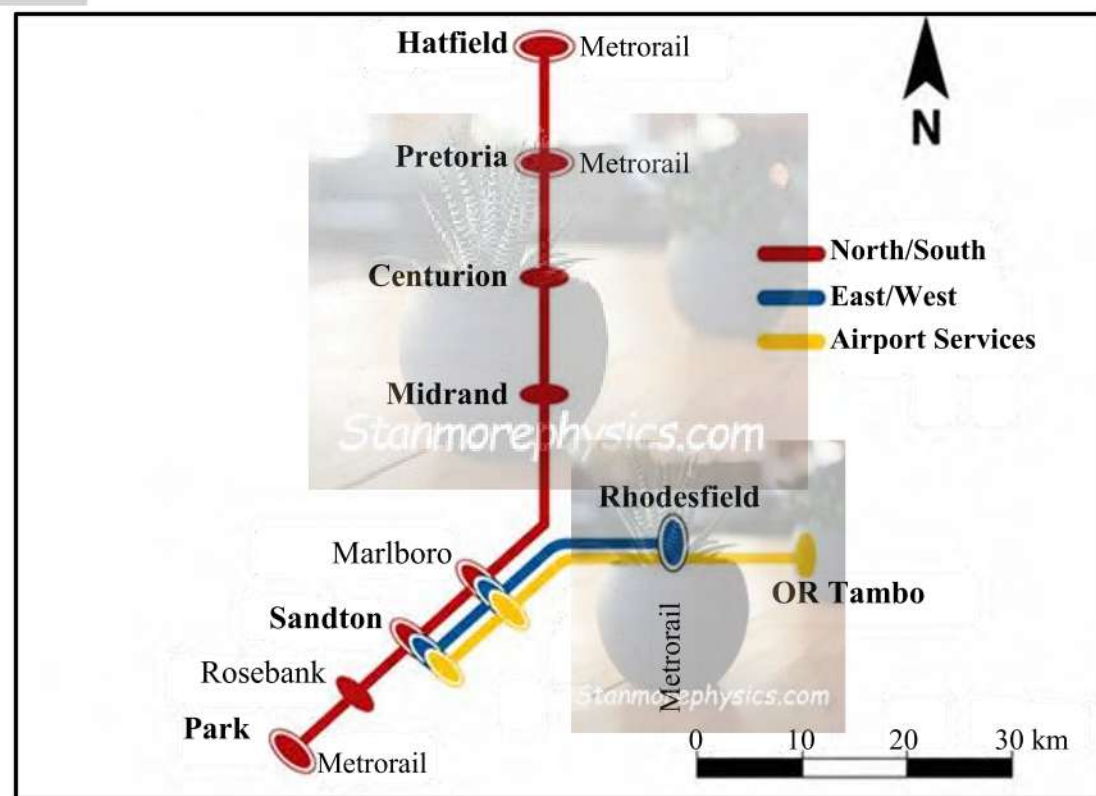
- 1.1.1 Scale (2)
- 1.1.2 Metric system (2)
- 1.1.3 Outcome (2)
- 1.1.4 Map (2)



- 1.2 Mr Shangare is on tour through Gauteng. He intends to use the Gautrain to travel between different places as it is the fastest mode of transport.

He saw the route map of the Gautrain on the internet, which indicates that several stations in Gauteng connect, including Park Station, Rosebank, Sandton, Marlboro, Midrand, Centurion, Pretoria, Hatfield and OR Tambo International Airport.

Part of the Gautrain route map is shown below.



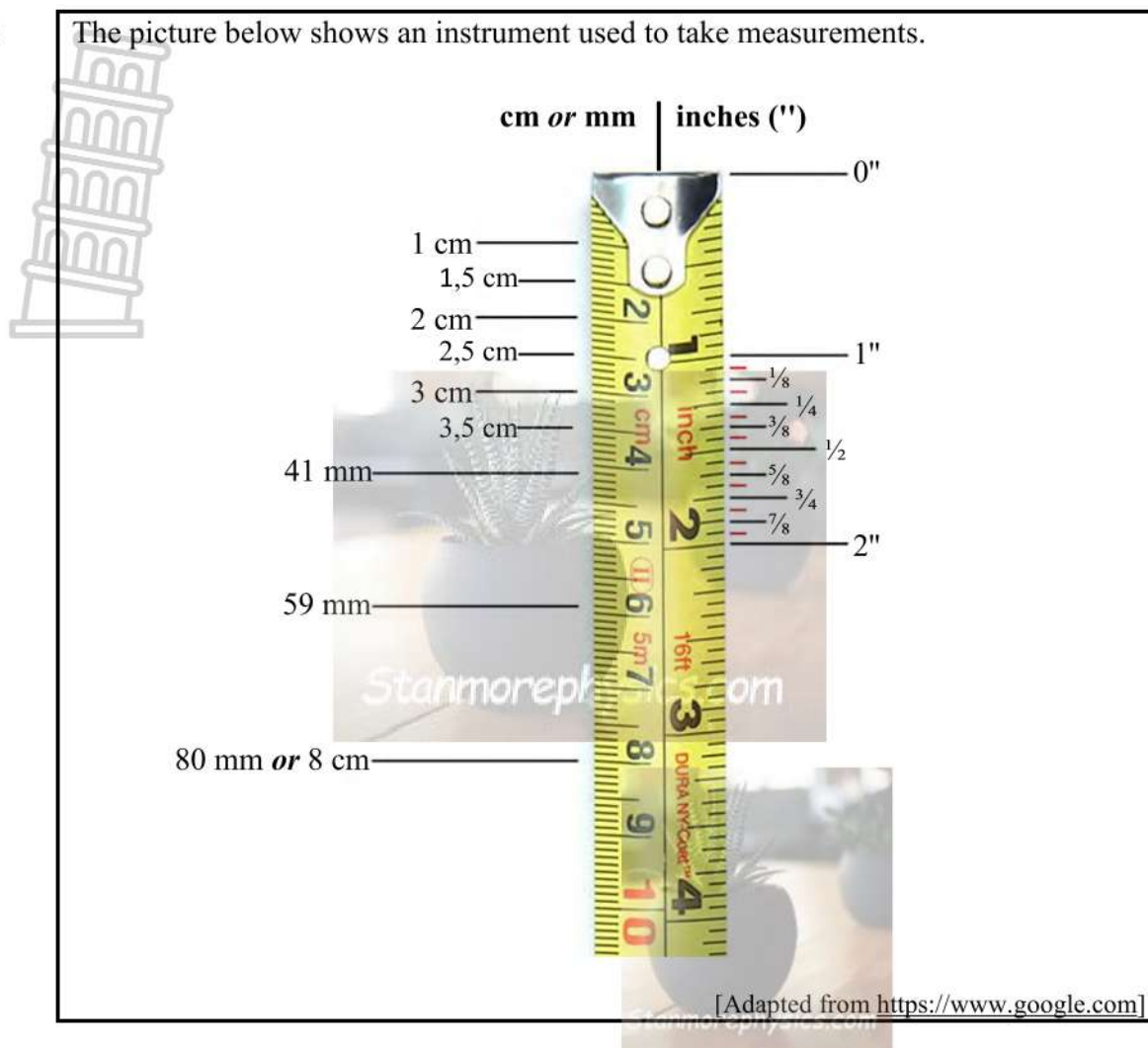
[Adapted from <https://www.events.saip.org.za>]

Study the information above to answer the questions that follow.

- 1.2.1 Identify the northern-most station shown on the route map. (2)
- 1.2.2 Write down the third station that Mr Shangare will pass if he takes the route from OR Tambo International Airport to Hatfield. (2)
- 1.2.3 Give the general direction of Rhodesfield Station from Rosebank Station. (2)
- 1.2.4 Write down the number of stations between Pretoria and Sandton. (2)

1.3

The picture below shows an instrument used to take measurements.



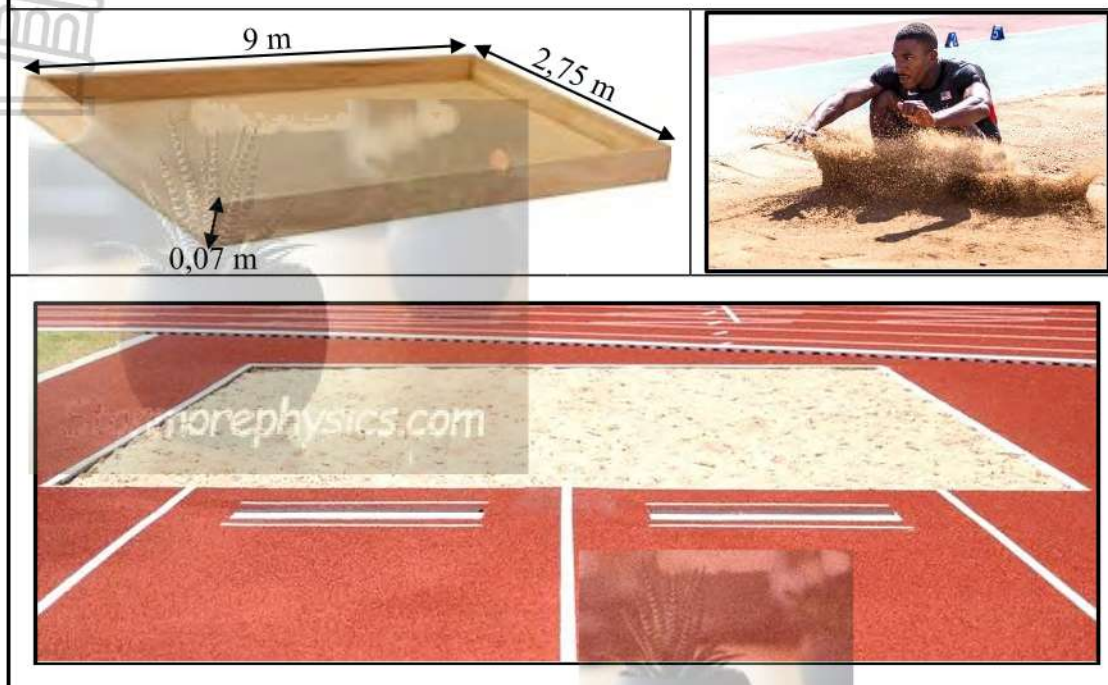
Use the information above to answer the questions that follow.

- 1.3.1 State the name of the instrument shown above. (2)
- 1.3.2 Identify the imperial measuring unit used on the instrument above. (2)
- 1.3.3 Write down 2,5 cm in inches. (2)
- 1.3.4 List ONE use for the instrument in the picture above. (2)

1.4

A certain high school has facilities for field and track athletics. Long jump is one of the field items that learners participate in.

The long jump pit is rectangular and 2,75 m wide, 9 m long, 0,07 m deep. It is filled with sand, as shown in the diagram and pictures below.



Use the information above to answer the following question.

Choose ONE of the following formulae that can be used to calculate the area of the shortest side of the rectangular long jump pit.

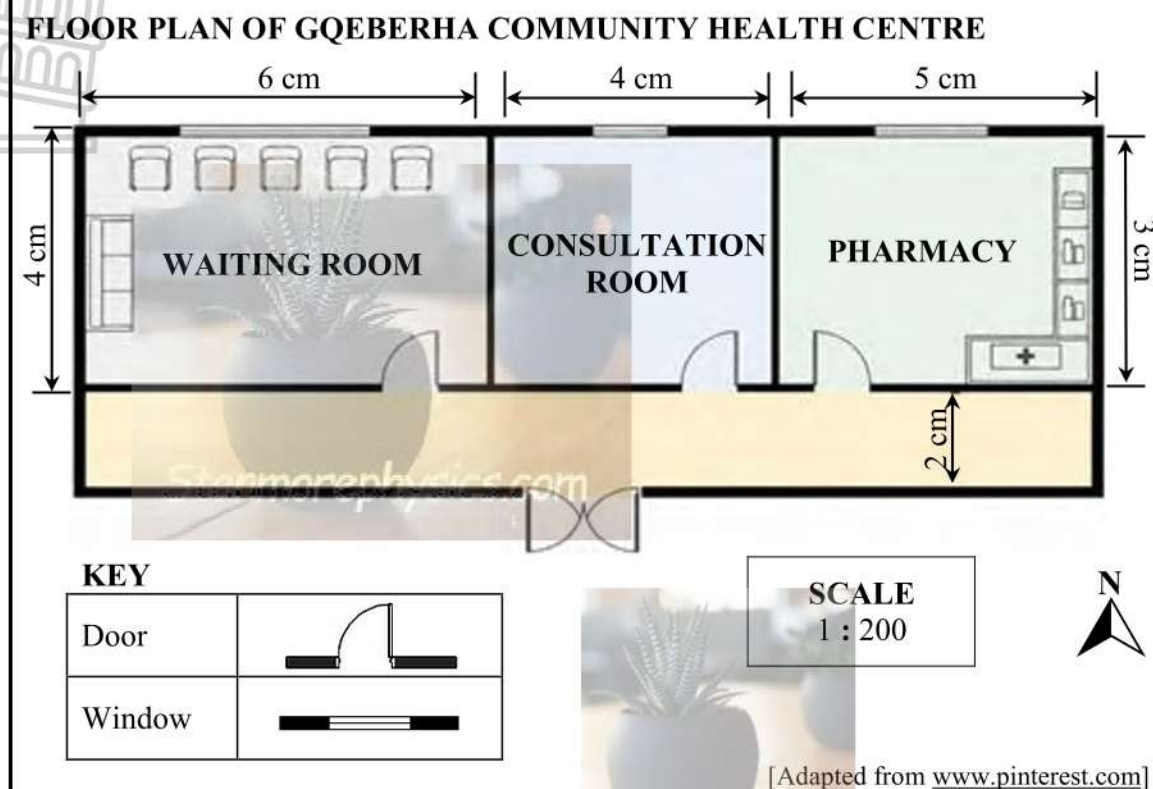
Write only the letter (A–D) next to the question number (1.4).

- A width $\times$ height
- B $2(\text{length} + \text{breadth})$
- C length $\times$ height
- D length + breadth

(2)
[26]

QUESTION 2

- 2.1 The diagram below shows a simplified floor plan of a new community health centre to be built in Gqeberha.



Use the information above to answer the questions that follow.

- 2.1.1 Name the rooms that have doors opening to the right. (2)
- 2.1.2 Name the type of scale used on this map. (2)
- 2.1.3 Determine the number of windows shown in the pharmacy. (2)
- 2.1.4 Use the given scale on the map to calculate the actual length of the waiting room in metres. (4)

2.2

Mr Shange has a delivery business. He bought a new bakkie to transport tyres for delivery to clients.

Shown below is a picture of the bakkie with the load bed and a diagram showing one of the tyres.

ANNEXURE A in the ANSWER BOOK shows the arrangement of a load of tyres on the bakkie.

PICTURE OF THE BAKKIE	DIAGRAM OF A TYRE
	
Dimensions: Length = 303,5 cm Width = 173 cm Height = 35,3 cm	Dimensions: Diameter = 58 cm Height = 15,5 cm

[Adapted from www.hyundai.com]

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

2.2.1 Determine the total number of tyres that can be packed along the width of the load bed. (2)

2.2.2 Mr Shange's son, John, stated that more than 20 tyres can be loaded onto the bakkie without exceeding the height of the load bed.

Verify, showing ALL calculations, whether his statement is CORRECT. (6)

2.3

Brian plans to take part in the South African Ironman Competition (IRONMAN African Championship) held in Nelson Mandela Bay. This ultra-distance triathlon consists of three disciplines, namely swimming, cycling and running.

He researched the performance and details of the top 5 athletes in the professional division of the 2025 competition.

TABLE 2 below shows the top 5 professional male athletes in the 2025 Ironman Competition, with their country of origin and their height in metres.

TABLE 2: IRONMAN SOUTH AFRICA 2025: WINNERS IN PROFESSIONAL MALE DIVISION

PRO DIVISION MALE WINNERS		COUNTRY	HEIGHT
1.	Magnus Ditlev	Denmark (DEN)	1,95 metres tall
2.	Marten van Riel	Belgium (BEL)	1,83 metres all
3.	Jonas Schomburg	Germany (GER)	1,9 metres tall
4.	Jonas Hoffman	Germany (GER)	1,78 metres tall
5.	Jamie Riddle	South Africa (RSA)	1,83 metres tall

[Source: <https://www.ironman.com>]

ANNEXURE B in the ANSWERBOOK shows the route map of the 2025 South African Ironman Competition.

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

2.3.1 Determine the size of the bike that would be suitable for Jamie Riddle. (2)

2.3.2 Write down the compass directions that the runners will use from the starting point to the Nelson Mandela University. (3)

2.3.3 The running leg starts and ends at Humewood Beach.

State whether the athletes will be running in a clockwise or an anticlockwise direction. (2)

2.3.4 One of the foreign participants stated that the distance on the map for ONE complete round of running would be more than 210 mm.

Verify his statement, showing ALL calculations. (8)

2.3.5 Identify a recreation facility in ANNEXURE B. (2)

[35]

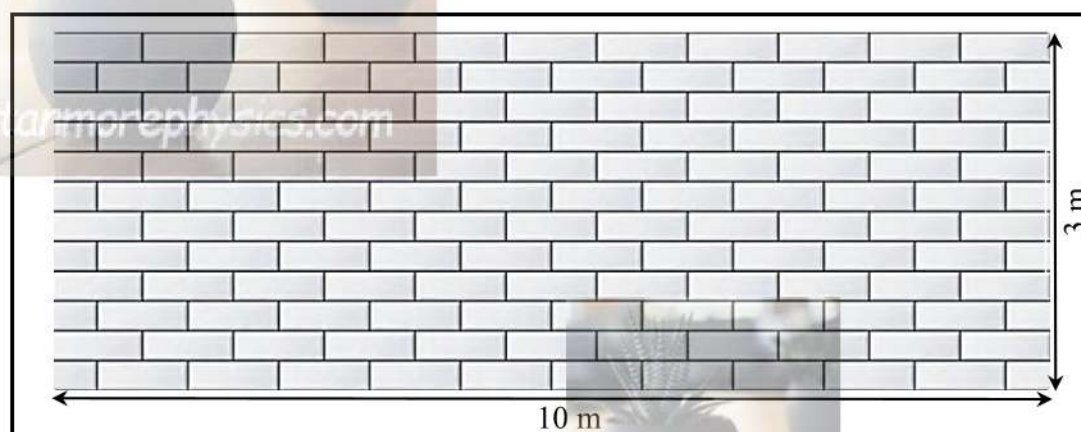
QUESTION 3

3.1 Thandeka wants to plaster a wall of her house.

She visited a local hardware store and was told that a bag of cement costs R95.

- The plastering on the wall has to be 16 mm (0,016 m) thick.
- 20% of the plaster is wasted since it falls on the ground during the process.
- 1 bag of cement produces $0,035 \text{ m}^3$ of plaster in a mixing ratio of 1 : 6 (cement : sand).

The diagram below shows the wall and some of its dimensions.



NOTE: Plaster is a mixture of sand, cement and water.

Use the information above to answer the questions that follow.

3.1.1 Calculate the total amount of plaster needed to plaster the wall, in m^3 .

You may use the following formula:

$$\text{Volume} = \text{length} \times \text{width} \times \text{height (thickness)} \quad (4)$$

3.1.2 Thandeka stated that 2 bags of cement will be enough to plaster the whole wall.

Verify, showing ALL calculations, whether her statement is VALID. (6)

3.1.3 Thandeka's friend Bathandwa suggested that they mix the materials in a ratio of 1 : 5 (cement : sand) to make the plaster stronger.

She further stated that an amount of R300 will be sufficient to purchase the cement needed.

Verify, showing ALL calculations, whether Bathandwa's statement is VALID. (5)



3.1.4 Bricks are arranged as in the diagram to make the building structure more stable.

A builder accidentally left one of the small tools behind one of the bricks.

Determine the probability, expressed as a percentage, that the tool was left behind a half brick.

NOTE: Count each half brick as ONE full brick.

(3)

3.2

Miss Vilakazi is installing a new bathroom at her newly acquired apartment. The bathroom floor needs to be tiled.

The size of one tile is 25 cm × 25 cm and there are 10 tiles in a box.

ANNEXURE C in the ANSWER BOOK shows a diagram of the bathroom.

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

3.2.1 Calculate the area of the bathroom floor.

You may use the following formula:

Area = length × width

(3)

3.2.2 Write the ratio of the height of the shower to the height of the bathroom in its simplest form.

(3)

3.2.3 When the bathroom floor is tiled, the shower area is excluded.

Determine the minimum number of boxes of tiles Miss Vilakazi must buy to tile the bathroom floor.

(8)

3.2.4 Water is a scarce resource in South Africa.

Give ONE way in which Miss Vilakazi can save water in her apartment.

(2)

[34]

QUESTION 4

The quality of water remains a challenge in many South African households. As a result, Mr Masego wants to install a water purification system to improve the quality of water for daily household use.

ANNEXURE D in the ANSWER BOOK shows the water purification system that Mr Masego plans to install.

Use ANNEXURE D and the information above to answer the following questions.

- 4.1 Calculate the circumference of the concrete platform.

You may use the following formula:

$$\text{Circumference} = 2(\text{length} + \text{width}) \quad (3)$$

- 4.2 Calculate the total length of the square tubing required to manufacture the frame of the housing of the purification system. (3)

- 4.3 The filter cartridges must be replaced after every 18 000 litres of filtered water. Mr Masego filters 520 litres of water per day. He replaced the filter cartridges on 1 August 2026.

He states that, if he follows the replacement schedule correctly, the cartridges should be replaced again by 10 September 2026.

Verify, with calculations, whether Mr Masego's statement is VALID. (5)

- 4.4 The system has a flow rate of 3 000 LPH (litres per hour).

Mr Masego reckons that the tank will be filled by 09:50 if he starts filling an empty tank with purified water at 09:00.

Verify, showing ALL calculations, if his statement is CORRECT. (6)

- 4.5 State ONE possible reason for the decline in water quality in South Africa. (2)

- 4.6 The diagram in ANNEXURE D is drawn to a scale of 1 : 10.

Use the information in the diagram to sketch a scale drawing of the rectangular bottom section that is holding the cartridges. (4)

[23]

QUESTION 5

- 5.1 Mr Jirivengwa enjoys travelling during holidays. In December 2025, he travelled to Australia for the holidays.

ANNEXURE E in the ANSWER BOOK shows a map of Australia that he obtained from the internet.

NOTE: 1 mile = 1,609344 km

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

- 5.1.1 State the name of the ocean shown on the map. (2)

- 5.1.2 Explain the meaning of the scale used on the map (2)

- 5.1.3 Australia is made up of 6 states.

What is the probability of having a state close to the Atlantic Ocean? (2)

- 5.1.4 The maximum temperature in Queensland is 101 °F.

Convert the temperature to °C.

You may use the following formula:

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 1,8) + 32 \quad (3)$$

- 5.1.5 Mr Jirivengwa departed from Katherine at 07:45 and travelled to Darwin, a distance of 195 miles. He arrived in Darwin at 11:30 on the same day. During the trip, he stopped for a 15-minute break.

Calculate, in kilometres per hour, the average speed at which Mr Jirivengwa travelled from Katherine to Darwin.

You may use the following formula:

$$\text{Average speed} = \frac{\text{distance}}{\text{time}} \quad (7)$$

- 5.1.6 In 2024, Queensland had an estimated population of 8,58 million people, with an average population density of approximately 3,23 people per km².

Calculate the estimated area of Queensland in square miles.

NOTE: Population density refers to the number of people living per square unit of the area. (6)

5.2

Mr Jirivengwa plans a road trip from Pretoria to Windhoek in Namibia.

ANNEXURE F in the ANSWER BOOK shows the strip chart he found on the internet.

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

5.2.1 State the difference between a strip chart and a route map. (2)

5.2.2 Determine the distance between Rustenburg and Zeerust. (2)

5.2.3 Give ONE disadvantage of using a strip chart when travelling. (2)

5.2.4 The fuel consumption of Mr Jirivengwa's vehicle is 6 litres per 100 km.

Calculate the number of litres of fuel he will use during the trip from Pretoria to Windhoek. (4)

[32]

TOTAL: 150





READ THE INSTRUCTIONS ON THE NEXT PAGE.

FOLLOW THESE INSTRUCTIONS CAREFULLY

1. Clearly write your name, surname and class in the space provided.
2. Answer ALL the questions in the spaces provided in the ANSWER BOOK ONLY.
3. If you require additional space for your answers:
 - 3.1 Use the additional space provided at the end of the ANSWER BOOK.
 - 3.2 When answering a question in the additional space, indicate clearly the question number in the column on the left-hand side.
4. No pages may be torn from this ANSWER BOOK.
5. Read the instructions in the question paper carefully.
6. Candidates may not retain the ANSWER BOOK or remove it from the examination room.
7. Answers must be written in blue ink as distinctly as possible.
8. Do not write in the margins.
9. Draw a neat line through any work/rough work that must NOT be marked.

QUESTION 1

Solution		Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.2.1		(2)
1.2.2		(2)
1.2.3		(2)
1.2.4		(2)
1.3.1		(2)
1.3.2		(2)
1.3.3		(2)
1.3.4		(2)
1.4		(2)
		[26]

QUESTION 2

Solution		Marks
2.1.1		(2)
2.1.2		(2)
2.1.3		(2)
2.1.4		(4)

QUESTION 2.2

ANNEXURE A

TOP VIEW OF LOAD BED WITH TYRE ARRANGEMENT



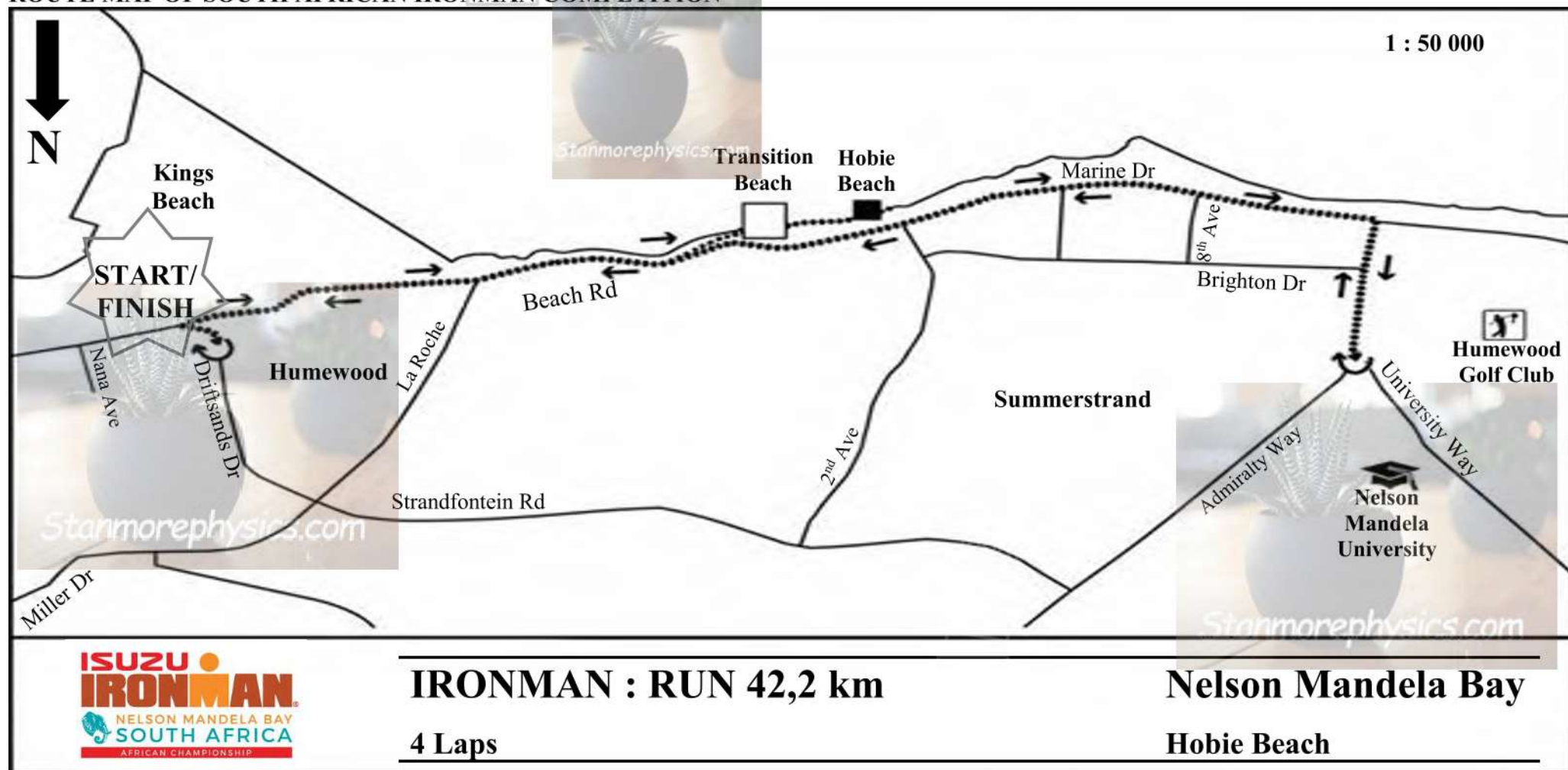
NOTE: The diagram is NOT drawn to scale.

	Solution	Marks
2.2.1		(2)
2.2.2		(6)

QUESTION 2.3

ANNEXURE B

ROUTE MAP OF SOUTH AFRICAN IRONMAN COMPETITION

[Adapted from www.ironman.com]

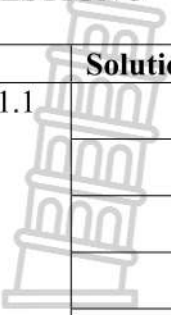
ROAD BIKE SIZE CHART

YOUR HEIGHT (ft/in)	YOUR HEIGHT (cm)	BIKE SIZE
5'0"–5'2"	152–158 cm	48
5'2"–5'4"	158–163 cm	50
5'4"–5'6"	163–168 cm	52
5'6"–5'9"	168–174 cm	54
5'9"–5'11"	174–180 cm	56
5'11"–6'1"	180–185 cm	58
6'1"–6'3"	185–190 cm	60
6'3"–6'5"	190–195 cm	62

[Source: <https://www.cyclistshub.com>]

	Solution	Marks
2.3.1		(2)
2.3.2		(3)
2.3.3		(2)
2.3.4		(8)
2.3.5		(2)
		[35]

QUESTION 3

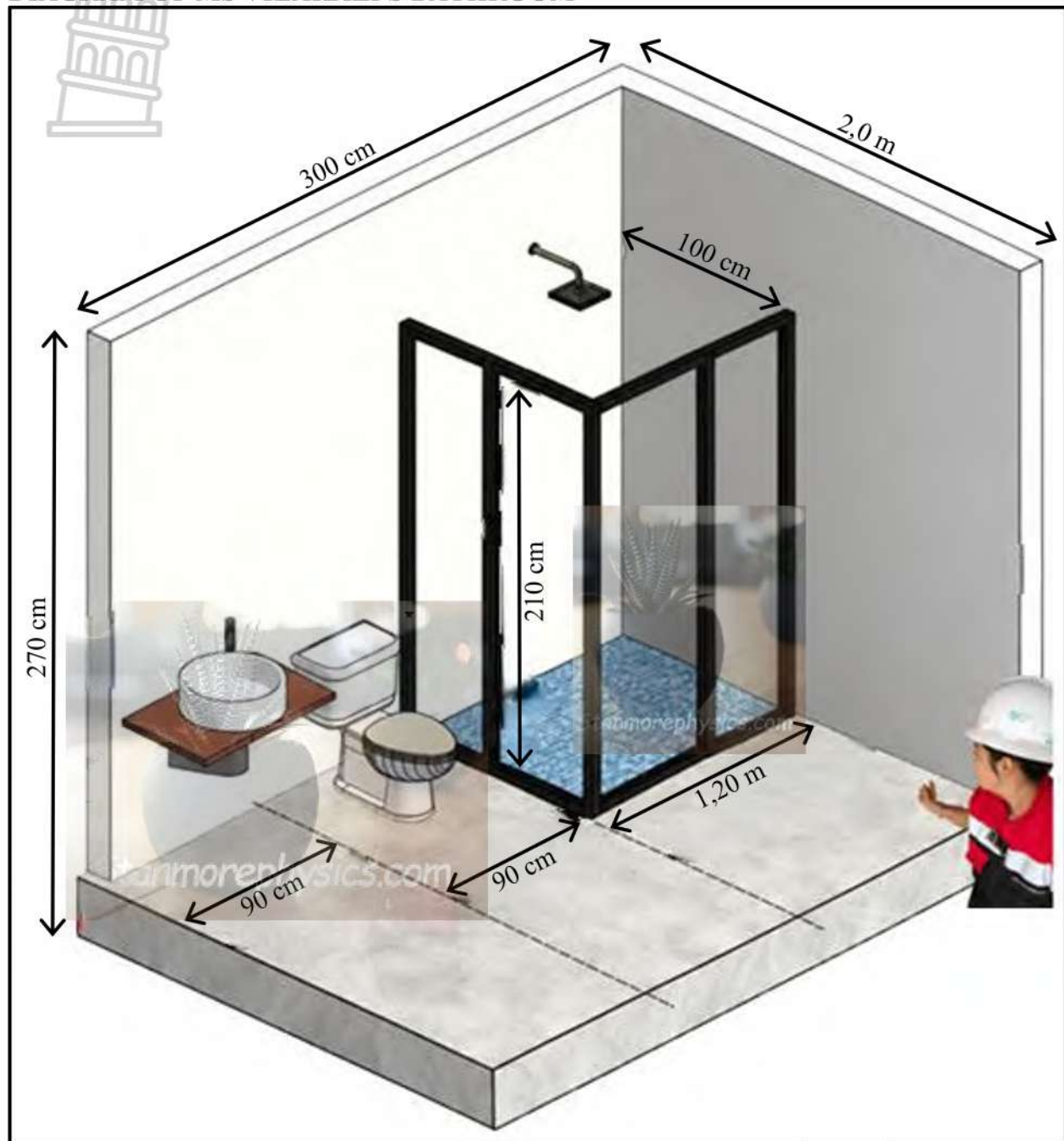
	Solution	Marks
3.1.1		(4)
3.1.2		
3.1.3		(6)

	Solution	Marks
3.1.3 (cont.)		
		(5)
3.1.4		
		(3)

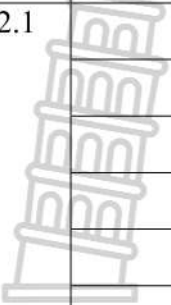
QUESTION 3.2

ANNEXURE C

DIAGRAM OF MS VILAKAZI'S BATHROOM



[Adapted from <https://eu.docs.wps.com>]

	Solution	Marks
3.2.1		
3.2.2		(3)
3.2.3		(8)

	Solution	Marks
3.2.4		
		(2)
		[34]





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QUESTION 4

ANNEXURE D

3-STAGE WATER FILTERING SYSTEM WITH JOJO TANK

ONE FILTER (20")	JOJO TANK (2 450 LITRES)	
		
DIMENSIONS: Diameter of top cap = 130 mm Height = 600 mm Diameter = 110 mm NOTE: Dimensions are approximate and may vary slightly depending on model	DIMENSIONS OF TANK: Diameter = 1 530 mm Height = 2 200 mm	DIMENSIONS OF PLATFORM: Length = 1 800 mm Width = 1 800 mm Height = 150 mm
WATER FILTERING SYSTEM		
	DIMENSIONS OF THE WATER FILTERING SYSTEM: Height = 1 200 mm Width = 480 mm Depth = 200 mm NOTE: Dimensions may vary slightly depending on model DIMENSIONS OF SQUARE TUBE: 25 mm × 25 mm × 1,6 mm (Wall thickness)	

[Adapted from <https://reverseosmosis.co.za>; <https://www.jojo.co.za>]

	Solution	Marks
4.1		(3)
4.2		(3)
4.3		(5)
4.4		(6)
4.5		(2)

	Solution	Marks
4.6		
		(4)
		[23]





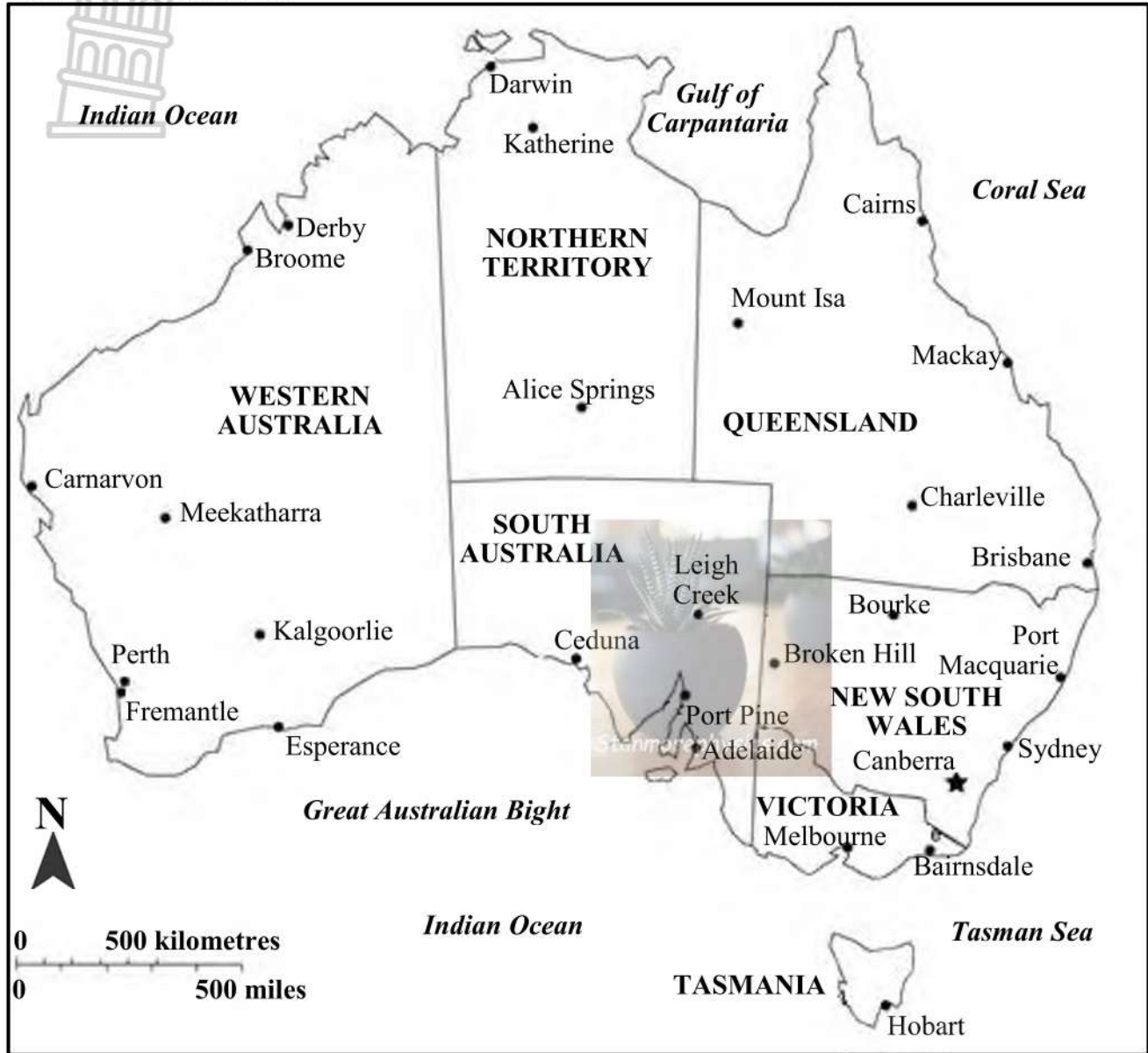
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QUESTION 5

ANNEXURE E

MAP OF AUSTRALIA



[Adapted from www.freeusandworldmaps.com]

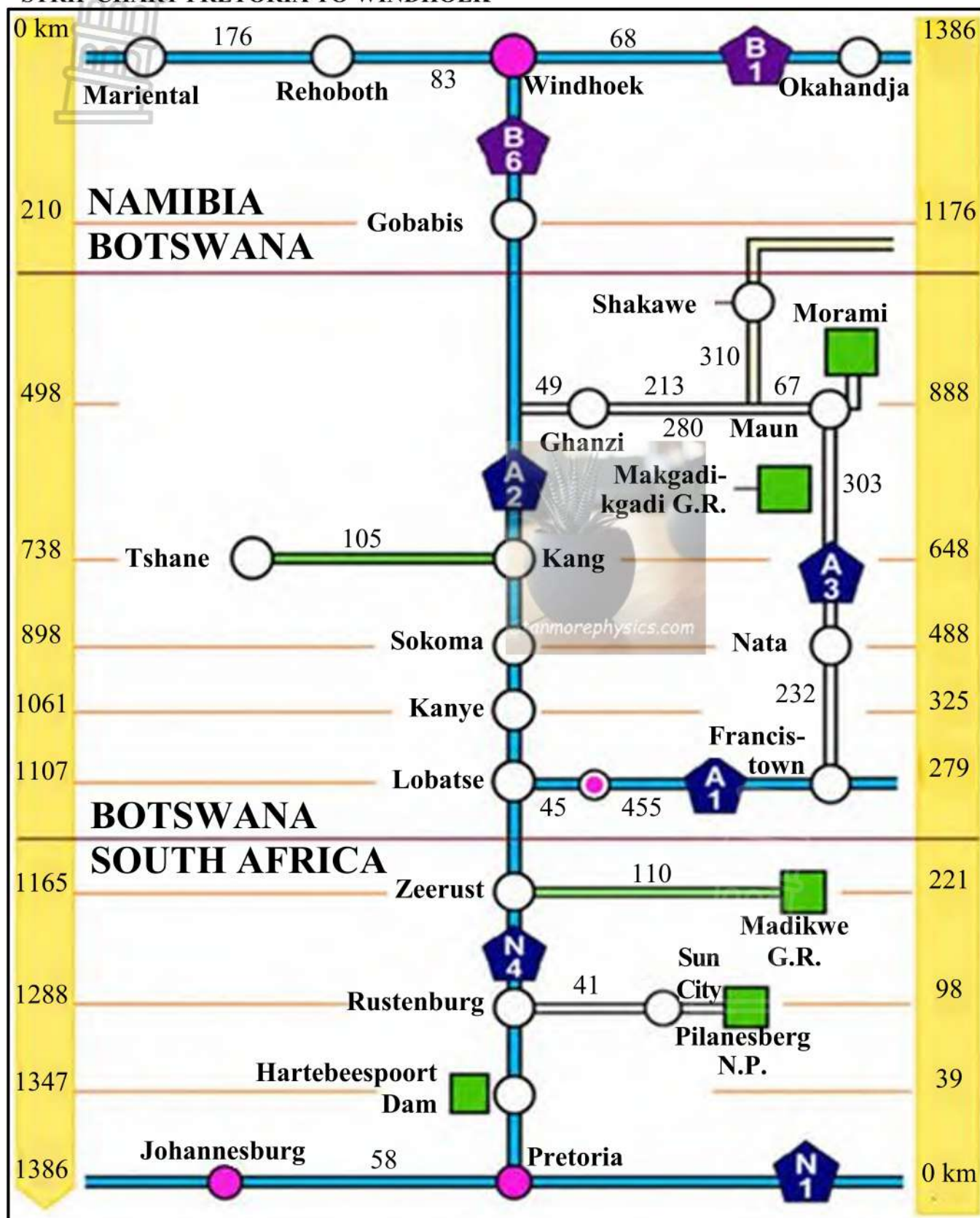
	Solution	Marks
5.1.1		(2)
5.1.2		(2)

	Solution	Marks
5.1.3		(2)
5.1.4		(3)
5.1.5		(7)
5.1.6		(6)

QUESTION 5.2

ANNEXURE F

STRIP CHART PRETORIA TO WINDHOEK



[Adapted from <https://online.htseden.co.za>]

	Solution	Marks
5.2.1		(2)
5.2.2		(2)
5.2.3		(2)
5.2.4	 Stanmorephysics.com	(4)
		[32]

TOTAL: 150

	Additional space	Marks





Northern Cape Department of Education

**PROVINCIAL PREPARATORY EXAMINATION/
PROVINSIALE VOORBEREIDENDE EKSAMEN**

GRADE/GRAAD 12

**MATHEMATICAL LITERACY/
WISKUNDIGE GELETERDHEID**

PAPER/VRAESTEL 2

SEPTEMBER 2026

MARKS/PUNTE: 150

**These marking guidelines consist of 17 pages./
Hierdie nasienriglyne bestaan uit 17 bladsye.**

Symbol/Kode	Explanation/Verduideliking
M	Method mark/Metodepunt
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/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./Penalising, bv. vir geen eenhede nie, verkeerde afronding, ens.
R	Rounding off/Afronding
NPR	No penalty for rounding/Geen penalising vir afronding nie
NPU	No penalty for omitting correct unit/Geen penalising vir die uitlaat van die korrekte eenheid nie
AO	Answer only/Slegs antwoord
MCA	Method with consistent accuracy/Metode met volgehoue akkuraatheid
RCA	Rounding consistent with accuracy/Afronding met volgehoue akkuraatheid

NOTE:

- If a learner answers a question TWICE, only mark the FIRST attempt.
- If a learner 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 learner presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- Rounding is an independent mark.
- General principle of marking: if the learner makes one mistake, one mark is deducted.
- A conclusion mark can only be awarded if relevant calculations of at least $\frac{1}{3}$ of the maximum mark of the subquestion has been awarded.
- No penalty for rounding (NPR) if the first decimal is correct, except questions involving money.

LET WEL:

- As 'n leerder 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n leerder 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas; dit hou egter op by die tweede berekeningsfout of 'break-down'.
- Wanneer 'n leerder aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gegee het, penaliseer vir elke ekstra item.
- Afronding tel as 'n afsonderlike punt.
- Die algemene beginsel van nasien: as 'n leerder een fout maak, word een punt afgetrek.
- 'n Gevolgtrekkingspunt kan slegs toegeken word indien relevante berekeninge van ten minste $\frac{1}{3}$ van die maksimum punt van die subvraag toegeken is.
- Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie, behalwe as vrae geld insluit.

QUESTION/VRAAG 1 [26 MARKS/PUNTE] ANSWER ONLY FULL MARKS			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
* 1.1.1	D ✓✓A	2A Correct option/Korrekte opsie (2)	MP L1
* 1.1.2	C ✓✓A	2A Correct option/Korrekte opsie (2)	M L1
* 1.1.3	G ✓✓A	2A Correct option/Korrekte opsie (2)	P L1
* 1.1.4	A ✓✓A	2A Correct option/Korrekte opsie (2)	MP L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.2.1	Hatfield Station/Hatfield-stasie ✓✓RT	2RT Correct station (2)	MP L1
*			
1.2.2	Sandton Station/Sandton-stasie ✓✓RT Midrand Station/Midrand-stasie	2RT Correct station (2)	MP L1
1.2.3	North-east OR NE/Noordoos OF NO ✓✓A	2A Answer (2)	MP L1
1.2.4	3 stations/stasies ✓✓A	2A Answer (2)	MP L1
*			
1.3.1	Measuring tape/Maatband ✓✓A	2A Answer (2)	M L1
1.3.2	Inches OR "/Duim OF " ✓✓A	2A Answer (2)	M L1
1.3.3	1 inch OR 1"/1 duim OF 1" ✓✓RT	2RT Answer (2)	M L1
1.3.4	Measuring length/distance/Meet lengte/afstand ✓✓A Or any other relevant answer/Of enige ander relevante antwoord	2A Answer (2)	M L1
1.4	A ✓✓A	2A Answer (2)	M L1
[26]			

QUESTION/VRAAG 2 [35 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
2.1.1	Waiting room/Wagkamer ✓A Consultation room/Sprekkamer ✓A	1A Waiting room 1A Consultation room (2)	MP L2
2.1.2	Number scale <i>or</i> ratio scale ✓✓A Getalleskaal <i>OF</i> Verhoudingskaal <i>OF</i> Numeriese skaal	2A Answer (2)	MP L1
2.1.3	One/(1)/Een (1) ✓✓RT	2RT Number of windows (2)	MP L2
2.1.4	1 : 200 ratio/-verhouding ✓MA $\frac{6 \times 200}{1} = 1200 \text{ cm}$ ✓A ✓C ✓CA 1200 cm ÷ 100 = 12 m	1MA Multiplying by 200 1A Simplification 1C Convert from cm to m 1CA Answer in m (4)	MP L2
2.2.1	$\frac{173 \text{ cm}}{58 \text{ cm}} = 2,98$ ✓MA = 2 tyres/bande ✓R	1MA Dividing width by 58 cm diameter of tyre 1R Rounding (2)	MP L2
2.2.2	Tyres along the length/Bande langs lengte: ✓MA $\frac{303,5}{58} = 5,23 = 5$ ✓A Tyres along the height/Bande langs hoogte: $\frac{35,3}{15,5} = 2,27 = 2$ ✓A Total number of tyres/Totale getal bande ✓MCA = 5 × 2 × 2 = 20 tyres/bande ✓CA His statement is INCORRECT/ ✓O Sy stelling is VERKEERD.	CA from Question 2.2.1 1MA Dividing length of bakkie by 58 cm 1A Simplification 1A Simplification 1MCA multiplying 2 × 5 × 2 1CA simplification 1O Conclusion (6)	MP L4

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.3.1	✓✓RT Size 58/Grootte 58	2 RT (2)	MP L1
2.3.2	South-west/Suidwes ✓✓A North/Noord ✓A	2A Answer 1A Answer (3)	MP L2
2.3.3	Clockwise/Kloksgewys ✓✓A	2A Correct direction (2)	MP L1
2.3.4	✓RT ✓MA ✓A $42,2\text{km} \div 4 = 10,6\text{km}$ $10,6\text{km} \times 1000\,000 = 10\,600\,000\text{ mm}$ ✓C 1: 50 000 ✓RT Distance on the map/Afstand op die kaart $= 10\,600\,000 \div 50\,000$ ✓MCA $= 212\text{ mm}$ ✓CA Her statement is CORRECT/ Haar stelling is REG ✓O OR/OF ✓RT ✓MA ✓A $42,2\text{km} \div 4 = 10,6\text{km}$ $10,6\text{km} \times 100\,000 = 1\,060\,000\text{ cm}$ ✓C 1: 50 000 ✓RT Distance on the map/afstand op die kaart $= 1\,060\,000 \div 50\,000$ ✓MCA $= 21,2\text{cm}$ ✓CA Her statement is CORRECT/ Haar stelling is REG ✓O	1RT Correct distance 1MA Dividing by 4 1A Simplification 1C Conversion to mm 1RT Correct ratio 1MCA Dividing by scale factor 1CA Simplification 1O Conclusion 1RT Correct distance 1MA Dividing by 4 1A Simplification 1C Conversion to mm 1RT for correct ratio 1MCA Dividing by scale factor 1CA Simplification 1O Conclusion (8)	MP L4
*2.3.5	Golf Course/Golfbaan ✓✓RT Or any of the beaches/Of enige een van die strande	2RT Answer (2)	MP L1
[35]			

QUESTION/VRAAG 3 [34 MARKS/PUNTE]

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.1	Wall dimensions/<i>Mates van muur</i> $\checkmark$SF $10 \text{ m} \times 3 \text{ m} \times 0,016 \text{ m}$ Volume of plaster/ $= 10 \times 3 \times 0,016 = 0,48 \text{ m}^3$ $\checkmark$CA <i>Volume pleister</i> Include 20% wastage/ $\checkmark$MCA <i>Insluitend 20% afval:</i> $0,48 \times \frac{120}{100} = 0,576 \text{ m}^3$ $\checkmark$CA OR/OF $\checkmark$SF $\checkmark$CA $\text{Volume} = 10 \text{ m} \times 3 \text{ m} \times 0,016 \text{ m} = 0,48 \text{ m}^3$ $= 0,48 \text{ m}^3 \times 20\%$ $= 0,096 \text{ m}^3$ $\checkmark$MCA $= 0,48 \text{ m}^3 + 0,096 \text{ m}^3$ $= 0,576 \text{ m}^3$ $\checkmark$CA	1SF Substitution 1CA Simplification 1MCA Calculating wastage 1CA Simplification 1SF Substitution 1CA Simplification 1MCA Adding the % increase 1CA Simplification (4)	M L3
3.1.2	Required plaster volume/ $= 0,576 \text{ m}^3$. <i>Volume pleister benodig</i> $\checkmark$A $1 + 6 = 7$ $\checkmark$MCA $\checkmark$CA $\text{Volume of cement in mix/} = \frac{1}{7} \times 0,576 \text{ m}^3 = 0,083 \text{ m}^3$ <i>Volume sement in mengsel</i> $\checkmark$MCA $\text{Bags needed/} = 0,083 \div 0,035 = 2,37$ <i>Sakke benodig</i> $\checkmark$R Round up to 3 bags/<i>Rond op tot 3 sakke.</i> Therefore 2 bags are not enough/<i>Dus 2 sakke nie genoeg nie</i> Her statement is INCORRECT/ <i>Haar stelling VERKEERD</i>	CA from 3.1.1 1A Adding values 1MCA Calculating $\frac{1}{7} \times 0,576 \text{ m}^3$ 1CA Simplification 1MCA Dividing by ratio 1R Rounding up to 3 1O Comparison and conclusion (6)	M L4

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.3	New mix ratio/ = 1 : 5 so total parts = 6. <i>Nuwe mengselverhouding</i> Cement fraction/ <i>Sementbreuk</i> = $\frac{1}{6}$ Cement volume/ = $\frac{1}{6} \times 0,576 = 0,096 \text{ m}^3$ ✓CA <i>Volume sement</i> Number of bags = $0,096 \div 0,035 = 2,74\dots$, round to 3 bags/ ✓MCA <i>Getal sakke sement gerond na 3 sakke</i> ✓R Total cost/Totale koste = $3 \times R95 = R285$ ✓CA Her statement is CORRECT/ ✓O <i>Haar stelling is REG</i>	CA from Question 3.1.1 CA Simplification 1MCA Dividing 1R Rounding Up 1CA Simplification for cost 1O Conclusion (5)	M L4
3.1.4	$P/W = \frac{12}{138} \times 100\%$ ✓A = 8,7% ✓CA	1A Numerator 1A Denominator 1CA Simplification AO (3)	P L2
3.2.1	$300 \text{ cm} \div 100 = 3 \text{ m}$ ✓C Bathroom floor dimensions/: $3 \text{ m} \times 2 \text{ m}$ ✓SF <i>Badkamervloermates</i> Area/Oppervlakte = length $\times$ width = $3 \times 2 = 6 \text{ m}^2$ ✓CA OR/OF $2 \text{ m} \times 100 = 200 \text{ cm}$ ✓C Area = $200 \text{ cm} \times 300 \text{ cm}$ ✓SF = $60\,000 \text{ cm}^2$ ✓CA	1C Conversion 1SF Substitution 1CA Simplification 1C Conversion 1SF Substitution 1CA Simplification (3)	M L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.2.2	Ratio/Verhouding = 2,1m : 270cm ✓RT $2,1 \times 100 : 270\text{cm}$ 210:270 ✓MA 7 : 9 ✓CA OR/OF Ratio/Verhouding = 2,1 : 270 ✓RT = 2,1 : 2,7 ✓C = 7 : 9 ✓CA	1RT Both correct values 1MA Correct order 1CA Simplification 1RT Both correct values 1C Conversion 1 CA Simplification AO (3)	M L2
* 3.2.3	Shower area/Stortoppervlakte = $1,20 \times 1,00 = 1,20 \text{ m}^2$ ✓A ✓MCA Area to be tiled = $6 - 1,20 = 4,80 \text{ m}^2$ ✓CA ✓C 25 cm = 0,25 m Each tile/Elke teël = $0,25 \text{ m} \times 0,25 \text{ m} = 0,0625 \text{ m}^2$ ✓A Tiles needed/Teëls benodig ✓MCA ✓CA = $4,80 \div 0,0625 = 76,8$ so 77 tiles/teëls 10 tiles per box/10 teëls per boks → $77 \div 10 = 7,7$ thus 8 boxes/bokse ✓R	CA from Question 3.2.1 1A Simplification 1MCA Subtracting 1CA Simplification for area to be tiled 1C Conversion 1A Simplification area of one tile 1MCA Dividing the area 1CA Simplification 1R Rounding (8)	M L3
3.2.4	Shorter showers/Korter storte ✓✓O OR/OF Close tap while brushing teeth/Draai kraan toe terwyl tande geborsel word ✓✓O OR/OF Fix leaks, use low-flow fittings./Herstel lekke, gebruik laevloeipasstukke. ✓✓O	2O Reason (2)	M L4
[34]			

QUESTION/VRAAG 4 [23 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
4.1	$\text{Perimeter/Omtrek} = 2 (1\,800 + 1\,800) \quad \checkmark \text{SF}$ $= 7\,200 \text{ mm} \quad \checkmark \text{CA} \quad \checkmark \text{U}$	1SF Substitution into formula 1CA Simplification 1U Correct unit (3)	M L2
*4.2	$\text{Total length/Totale lengte} \quad \checkmark \text{RT}$ $= (480 \times 2) + (200 \times 2) + (600 \times 4) \quad \checkmark \text{MA}$ $= 3\,760 \text{ mm} \quad \checkmark \text{CA}$	1RT Correct values (480, 200 and 600) 1MA Multiplying values by 2 and by 4 and adding 1CA Simplification (3)	M L2
4.3	$\text{Water used per day/Waterverbruik per dag} = 520 \text{ litres}$ $\text{No. of days/} = \frac{18\,000}{520} = 34,6 \quad \checkmark \text{MA}$ $\text{Getal dae} \approx 35 \text{ days} \quad \checkmark \text{A}$ $\text{Replacement date} = 1 \text{ Aug } 2026 + 35 \text{ days} \quad \checkmark \text{MCA}$ $\text{Vervangingsdatum} = 4 \text{ September } 2026 \quad \checkmark \text{CA}$ His statement is incorrect <i>Sy stelling is verkeerd</i> $\checkmark \text{O}$ OR/OF $\left. \begin{array}{l} \text{August} = 31 \text{ days/dae} \\ \text{September} = 10 \text{ days} \end{array} \right\} 41 \text{ days/dae}$ $\text{Number of days} = \frac{1\,800}{520} = 35 \text{ days} \quad \checkmark \text{MA} \quad \checkmark \text{A}$ $\therefore 10^{\text{th}} \text{ September will be too late}$ $1 \text{ Aug} + 35 \text{ days} = 4 \text{ September} \quad \checkmark \text{MCA} \quad \checkmark \text{CA}$ His statement is INCORRECT/ <i>Sy stelling is VERKEERD</i> $\checkmark \text{O}$	1MA Dividing by 520 1A Simplification 1MCA Adding the days 1CA Replacement date 1O Conclusion 1MA Dividing by 520 1A Simplification 1MCA Adding the days 1CA Replacement date 1O Conclusion (5)	M L4
*4.4	$\text{Flow rate} = 1 : 3000 \quad \checkmark \text{RT}$ $\text{Time in minutes/} = 2\,450 \div 3\,000 \quad \checkmark \text{MA}$ $\text{Tyd in minute} = 0,82 \text{ hours} \times 60 \quad \checkmark \text{A}$ $= 49 \text{ minutes} \quad \checkmark \text{C}$ $\text{Finishing time/} = 09\text{h}00 + 00\text{h}49$ $\text{Tyd klaar} = 09\text{h}49 \quad \checkmark \text{CA}$ His statement is CORRECT/ <i>Haar stelling is REG</i> $\checkmark \text{O}$	1RT Correct ratio 1MA Dividing by 3 000 1A Number of hours 1C Conversion to minutes 1CA Finishing time 1O Conclusion (6)	M L4

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.5	Decline in sewerage system management/ <i>Afname in stormwateronderhoud</i> ✓✓O OR/OF Dumping of refuse in storm water systems/ <i>Stort van vullis in stormwaterstelsel</i> ✓✓O OR/OF Poor maintenance/ <i>Swak instandhouding</i> ✓✓O	2O Explanation (2)	M L4
4.6	Dimensions/<i>Afmetings</i>: Depth/<i>Diepte</i> = $200 \text{ mm} \div 10 = 20 \text{ mm}$ ✓A Width/<i>Wydte</i> = $480 \text{ mm} \div 10 = 48 \text{ mm}$ ✓A OR/OF Depth/<i>Diepte</i> = $20 \div 10 = 2 \text{ cm}$ ✓A Width/<i>Wydte</i> = $48 \div 10 = 4,8 \text{ cm}$ ✓A  20 mm/2 cm ✓CA 48 mm/4,8 cm ✓CA Measure width and length of drawing; 1 mm deviation allowed	1A Width 1A Depth 1CA Correct width and depth drawing 1CA Correct shape (4)	MP L3
[23]			

QUESTION/VRAAG 5 [32 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.1.1	Indian Ocean/Indiese Oseaan ✓✓A	2A Answer (2)	M L2
5.1.2	21 mm on the map represents 500 km in reality/ 21 mm op die kaart verteenwoordig 500 km in werklikheid ✓✓A OR/OF 34 mm on map represents 500 miles in reality/ 34 mm op kaart verteenwoordig 500 myl in werklikheid	2A Explanation (2)	MP L2
5.1.3	0% OR 0(zero) OR Impossible ✓✓A 0% OF 0(nul) OF Onmoontlik	2A Answer (2)	P L2
5.1.4	101 = (°C × 1,8) + 32 ✓SF °C = $\left(\frac{101-32}{1,8}\right)$ ✓MA °C = 38,3 ✓CA	1SF Substitution into formula 1MA Changing the subject of the formula 1CA Simplification AO (3)	M L2
5.1.5	Distance/Afstand = 195 miles/myl. Convert to kilometres/Herlei tot kilometer: 195 × 1,609344 ✓C kilometres/kilometer = 313,82 km ✓A Total elapsed time/Totale tyd: ✓MA 11:30 – 7:45 = 3 h 45 min Actual driving time/Werklike reistyd 3 h 45 – 15minutes= 3 h 30 min ✓CA = 3 h 30 min = 3,5 h ✓C Average speed/Gemiddelde speed ✓SF = 313,82 ÷ 3,5 = 89,66 km/h ✓CA	1C Converting miles to km 1A Distance in km 1MA Subtracting to get total elapsed time 1CA Actual driving time in hours and minutes 1C Converting 3 h 30 min to hours 1SF Correct substitution 1CA Speed in km/h (7)	M L3

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.1.6	Population/Populasie = 8,58 million = 8 580 000 ✓A Density = 3,23 people/km²/Digtheid mense/km² Area in km² = $\frac{8\,580\,000}{3,23} = 2\,656\,346,749$ km² ✓MA ✓MCA to square miles/tot vierkante myl : 1 square mile/1 vierkante myl = (1,609344)² 1 square mile/1 vierkante myl = 2,58999 km². ✓C Area in square miles/Oppervlakte in vierkante myl = 2 656 346,749 ÷ 2,58999 ✓MCA = 1 025 620,465 square miles/vierkante myl ✓CA	1A Simplification for writing in number format 8 580 000 1MA Diving by 3,23 1MCA Area in km² 1 C Convert factor to square kilometers 1MCA Dividing by 2,58999 1CA Simplification (6)	M L3
5.2.1	A strip chart is not drawn to scale/'n Strookkaart word nie volgens skaal geteken nie. A route map is drawn to scale/'n Roetekaart is volgens skaal geteken. ✓O OR/OF A strip chart shows distances between towns and cities/'n Strookkaart toon afstande tussen dorpe en stede. A strip chart shows one route in sequence with distances and stops/'n Strookkaart toon een roete in volgorde tot 'n ander. ✓O OR/OF A map shows a wider area with direction, position and more than one route/'n Kaart toon 'n wyer oppervlakte, posisie en meer as een roete. A route map shows a specific route from one place to another/'n Roetekaart toon 'n spesifieke roete van een plek na 'n ander. ✓O	1O Explanation strip chart 1O Explanation route map (2)	MP L4
5.2.2	Subtract the smaller from the larger/Trek kleiner getal van groter getal af. ✓RT 1288 – 1165 = 123 km. ✓A OR/OF ✓RT 221 – 98 = 123 km ✓A	1RT Reading both values 1A Answer 1RT Reading both values 1A Answer AO (2)	MP L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.2.3	Estimated distances might be inaccurate/ ✓✓ <i>Geskatte afstande mag onakkuraat wees</i> OR/OF Shows only major roads/routes/ ✓✓O <i>Toon slegs hoofpaaie/-roetes</i> OR/OF Only one route shown/Slegs een roete getoon ✓✓O <i>Alleen een roete getoon</i> OR/OF Poor surrounding detail/Swak omliggende detail ✓✓O <i>Slegte besonderhede omringende detail</i> OR/OF Difficult to see alternatives./ ✓✓O <i>Moeilik om alternatiewe te sien</i>	2O Reason (2)	MP L4
5.2.4	Total trip distance from strip chart/ ✓RT <i>Totale afstand op strookkaart ≈ 1 386 km</i> Fuel consumption/ = 6 ℓ per 100 km <i>Brandstofverbruik</i> ✓MA ✓MA Fuel needed/ = $\frac{6}{100} \times 1\,386 = 83,16 \text{ ℓ}$ ✓CA <i>Brandstof benodig</i>	1RT Total trip distance from strip chart 1MA Dividing by 100 1MA Multiply by 1386 1CA Answer (4)	MP L2
[32]			

TOTAL/TOTAAL: 150

ADDITIONAL NOTES AFTER MARKING GUIDELINE DISCUSSIONS

QUESTION 1			
Q/V	Solution	Explanation	T&L
*1.1.1	An instrument that is used to measure the weight of an object	2A correct option	MP L1
*1.1.2	A system of measurement that uses metres, litres, kilograms, etc.; all the units are divisible by 10	2A correct option	M L1
*1.1.3	The results of an event	2A correct option	P L1
*1.1.4	A symbolic presentation of selected characteristics of a place drawn on a flat surface	2A correct option	MP L1
*1.2.2	Midrand	1RT correct station	MP L1
*1.3.1	Tape measure	2A Answer	M L1
QUESTION 2			
* 2.1.4	If a learner measures the length of the waiting room wall inside or outside ACCEPT 5,8 – 6,2 cm	(4 marks)	MP L2
* 2.3.2	West or Westerly/ <i>Wes of Westelik</i> North/ <i>Noord</i>	2A Answer 1A Answer	MP L2
* 2.3.4	✓ RT ✓ A 42,2km ÷ 4 = 10,55km ✓ MA 10,55km × 1000 000 = 10 550 000 mm ✓ C 1: 50 000 ✓ RT Distance on the map/ <i>Afstand op die kaart</i> = 10 550 000 ÷ 50 000 ✓ MCA = 211 mm ✓ CA Her statement is CORRECT/ <i>Haar stelling is REG</i> ✓ O OR/OF	1RT Correct distance 1A Simplification 1MA Multiplying by 1 000 000 1C Conversion to mm 1RT Correct ratio 1MCA Dividing by scale factor 1CA Simplification 1O Conclusion	MP L4

	✓RT ✓A $42,2\text{km} \div 4 = 10,6\text{km}$ ✓MA $10,55\text{km} \times 100\,000 = 1\,055\,000\text{ cm}$ ✓C 1: 50 000 ✓RT Distance on the map/afstand op die kaart $= 1\,055\,000 \div 50\,000$ ✓MCA $= 21,1\text{cm}$ ✓CA Her statement is CORRECT/ Haar stelling is REG ✓O NOTE IF A LEARNER DID NOT DIVIDE TOTAL DIATANCE BY 4 ✓RT $42,2\text{km}$ ✓MA $42,2\text{km} \times 1\,000\,000 = 42\,200\,000\text{ mm}$ ✓C 1: 50 000 ✓RT Distance on the map/Afstand op die kaart $= 42\,200\,000 \div 50\,000$ ✓MCA $= 844\text{ mm}$ ✓CA Her statement is CORRECT/ Haar stelling is REG ✓O	1RT Correct distance 1A Simplification 1MA Multiplying by 1 000 000 1C Conversion to mm 1RT Correct ratio 1MCA Dividing by scale factor 1CA Simplification 1O Conclusion (8) 1RT Correct distance 1MA Multiplying by 1 000 000 1C Conversion to mm 1RT Correct ratio 1MCA Dividing by scale factor 1CA Simplification 1O Conclusion (7)	
* 2.3.5	Any beach appearing on the Map	2 RT Answer	MP L1
QUESTION 3			
* 3.2.3	Shower area/Stortoppervlakte $= 120 \times 100 = 12\,000\text{cm}^2$ ✓A ✓MCA ✓CA Area to be tiled $= 60\,000 - 12\,000 = 48\,000\text{ cm}^2$ Length of tile 25 cm Each tile/Elke teël $= 25\text{cm} \times 25\text{ cm} = 625\text{ cm}^2$ ✓A Tiles needed/Teëls benodig ✓MCA ✓CA $= 48\,000 \div 625 = 76,8$ so 77 tiles/teëls 10 tiles per box/10 teëls per boks $\rightarrow 77 \div 10 = 7,7$ so 8 boxes/bokse ✓R	CA from Question 3.2.1 1A Simplification 1MCA Subtracting 1CA Simplification for area to be tiled 1A Simplification area of one tile 1MCA Dividing the area 1CA Simplification 1MCA Dividing by 10 1R Rounding (8)	

QUESTION 4

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
*4.2	Total length/Totale lengte $= (480 \times 2) + (200 \times 2) + (1200 \times 4)$ ✓RT $= 6\,160 \text{ mm}$ ✓CA OR Total length/totale lengte $= (480 \times 4) + (200 \times 4) + (1200 \times 4)$ ✓RT $= 7520 \text{ mm}$ ✓CA OR Total length/Totale lengte $= (480 \times 4) + (200 \times 4) + (600 \times 4)$ ✓RT $= 5120 \text{ mm}$ ✓CA	1RT Correct values (480, 200 and 1200) 1MA Multiplying values by 2 and by 4 and adding 1CA Simplification (3) 1RT Correct values (480, 200 and 1200) 1MA Multiplying values by 2 and by 4 and adding 1CA Simplification (3) 1RT Correct values (480, 200 and 600) 1MA Multiplying values by 2 and by 4 and adding 1CA Simplification (3)	M L2
*4.3	30 days left in August + 10 days in September ✓MCA $= 40 \text{ days}$ ✓CA $40 \times 520 \text{ l} = 20\,800 \text{ l}$ ✓MA $20\,800 > 1800 \text{ l}$ ✓A His statement is INVALID ✓O	1MCA Adding the days 1CA Simplification 1MA Multiplying by 520 1A Simplification 1A Comparison 1O Conclusion	
*4.4	Flow rate = 1 : 3000 ✓RT Time in minutes/ = $50 \div 60$ ✓MA $\text{Tyd in minute} = 0,833 \text{ hours} \times 3000$ ✓MCA $= 2500 \text{ liter}$ ✓CA 1 full tank = 2450 liter His statement is CORRECT/ Haar stelling is REG ✓O	1RT Correct ratio 1MA Dividing 50/60 1CA Number of hours 1MCA Multiplying by 3000 1CA Simplification 1A Tank capacity 1O Conclusion (6)	