LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

SEPTEMBER 2026

MARKS: 150

TIME: 3 hours

PEMLITP2

This question paper consists of 15 pages and a 21 - page SPECIAL ANSWER BOOK.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of FIVE questions.
2. Answer ALL the questions 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. Maps and diagrams are NOT necessarily drawn to scale, unless otherwise stated.
6. Indicate units of measurement, where applicable.
7. Round off ALL final answers appropriately accordingly to the given context, unless stated otherwise.
8. Write neatly and legibly.

QUESTION 1

1.1 Below is a recipe to bake Blueberry muffins.

[adapted from www.bing.com]

Method

1. Pre-heat oven at 180°C
2. Mix dry ingredients – flour, sugar, baking powder, salt
3. Mix wet – eggs, milk, oil and pour into dry and stir lightly
4. Fold in blueberries and bake for 20 minutes until golden brown.

Use the recipe above to answer the questions that follow:

1.1.1 If a cup of flour is 125 g, calculate the mass of 2 cups. (2)

1.1.2 How may cups of milk are needed if 2 dozens of muffins are baked? (2)

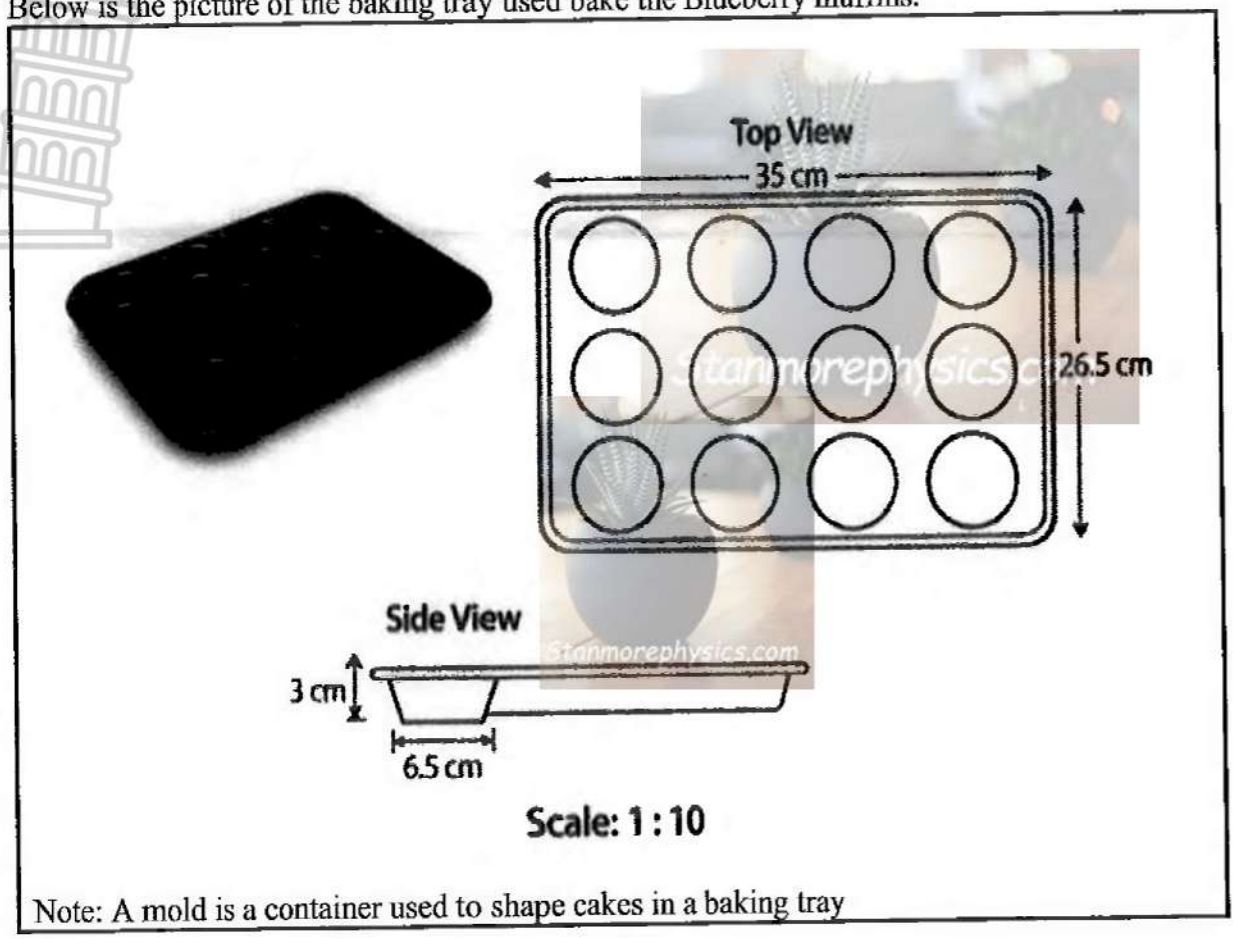
1.1.3 How many muffins makes a dozen. (2)

1.1.4 The muffins bake for 20 minutes, how long is a third of that time? (2)

1.1.5 Pre-heat the oven at 180°C is equal to ---------- °F. Choose the correct answer and write the correct letter. (2)

A. 150
B. 356
C. 278

1.2 Below is the picture of the baking tray used bake the Blueberry muffins.



Note: A mold is a container used to shape cakes in a baking tray

Use the picture and the information above to answer questions that follow:

1.2.1 Explain the meaning of the scale in this context. (2)

1.2.2 State the number of molds in the baking tray. (2)

1.2.3 What is the depth of each mold? (2)

1.2.4 Name the shape of the baking tray. (2)

1.2.5 If 5 muffins are burnt what is the probability (as a common fraction) of selecting a burnt muffin? (2)

1.3 TABLE 1 below has a list of explanations and definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

LETTER	DEFINITIONS
A	Information about the profile of a route as seen from the side.
B	The amount of 3-D space occupied by an object.
C	The result of speed, in km/h divided by time, in hours.
D	A prism that is named after the 3-dimensional shape that has rectangles as its faces and base
E	A diagram that shows a real-life object drawn in proportion.
F	A map of a small area such as a town or city.
G	A Two – dimensional shape of which 2 lengths are equal to each other.
H	The amount of space available to hold something.
I	The result of speed, in km/h, multiplied by time, in hours
J	Shows a specific route, for instance for an event, as seen from above

Use TABE 1 above and match the explanation or definition with EACH of the concepts below. Write the letter (A - J) with each of the question numbers (1.3.1 to 1.3.5) e.g. 1.3.7 Z.

1.3.1 Scale drawing (2)

1.3.2 Elevation map (2)

1.3.3 Rectangular prism (2)

1.3.4 Street map (2)

1.3.5 Distance (2)

[30]

QUESTION 2

2.1 ANNEXURE A in the ANSWER BOOK shows the map of Stellenbosch University. Claire plans to study Engineering at the university of Stellenbosch next year.

Use ANNEXURE A to answer the questions that follow.

2.1.1 The Engineering Faculty lies on the corner of which two streets? (2)

2.1.2 What type of a road is N2? (2)

2.1.3 Claire googled the following directions to a specific street in Stellenbosch.

> Travel in a Southernly direction along Joubert Street, turning left into Merriman Road. Follow the road to the traffic circle, taking the third turn, left off the circle.

Name the street Claire was looking for. (2)

2.2 ANNEXURE B in the ANSWER BOOK is the floor plan of Claire's flat

Use ANNEXURE B to answer the questions that follow.

2.2.1 Define the term floor plan (2)

2.2.2 Claire argues that the length of her bedroom is less than 3 metres, prove with calculations whether her statement is **valid.** (4)

2.2.3 State how many windows are found on the Southern side of the flat. (2)

2.2.4 Determine the ratio of windows to doors of the plan. (2)

2.2.5 By measuring the length of Line A, determine the unit scale of the floor plan. (4)

2.3 ANNEXURE C in the ANSWER BOOK shows the layout plan of a modern tiered lecture hall

Use Annexure C to answer the questions that follow.

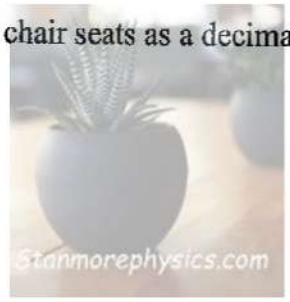
2.3.1 Name the type of scale on the layout plan. (2)

2.3.2 Write one advantage of the scale mentioned above. (2)

2.3.3 Determine the number of seats in this lecture hall layout plan. (2)

2.3.4 Calculate the probability of a wheel chair seats as a decimal. Round your answer to three decimal places. (3)

[29]



QUESTION 3

3.1

King Kasie owns a nursery where he pots plants and sells them at a local flea -market. He uses cylindrical and rectangular pots to pot his plants. The soil he uses in each pot is 83% of the capacity of the pot.

Inner dimensions of the cylindrical pot	Inner dimensions of the rectangular prism pot
Height = 40 cm	Height = 40 cm
Radius = 75 mm	Length = 14 cm
	Width = 8 cm

You may use the following formulae:

Volume of a cylinder = $\pi \times radius^2 \times height$, $\pi = 3{,}142$

Volume of a rectangular prism = **length** × **width** × **height**

Use the information and the pictures above to answer the questions that follow:

3.1.1 The volume of the rectangular prism pot is 4480 cm^3. Calculate, in cm^3, the volume of the soil rounded to the nearest 100. (3)

3.1.2 Calculate the volume of the cylindrical pot in cm^3. (4)

3.1.3 The material used to make the cylindrical pot is 2,5 mm thick. (3)

Show that the outer diameter of the cylindrical pot is 15,5 cm.

3.1.4 King Kasie packs 8 cylindrical pot plants in an open rectangular box to be able to transport them to the local flea-market. The length of the box does not exceed 70 cm.

Determine (in mm) the length and the width of the rectangular open box. (4)

3.2 The company which manufactures the two types of pots wants to prove which one between the cylindrical pot and rectangular prism pot is cost effective to manufacture. Help them to identify through calculations.

You may use the following formulae:

SA of cylinder = $2\pi rh+2\pi r^2$, use $\pi = 3,142$

SA of Rectangular Prism = 2 (L × W) + 2 (L × H) + 2 (W × H) (7)

3.3 King Kasie bought a 0,030 m³ bag of potting soil for R78.99. The mass of the bag with contents is 14kg. He uses a special cup to place the potting soil in the pots.

NOTE: 1 ℓ = 0,001 m³
1 cup = 250 mℓ

Picture of the potting soil King Kasie bought

[Source: www.builders.co.za]

TABLE 1 below shows some of the nutrients in the potting soil.

TABLE 1: SOME OF THE NUTRIENTS IN THE POTTING SOIL

NUTRIENT	AMOUNT IN POTTING SOIL
Nitrogen	1,6%
Potassium oxide	0,7%
Calcium	0,5%
Copper	5 parts per million
Carbon: nitrogen	15,5 : 1

3.3.1 Calculate the cost per kilogram of the potting soil. (2)

3.3.2 Convert the volume of the potting soil into cups. (3)

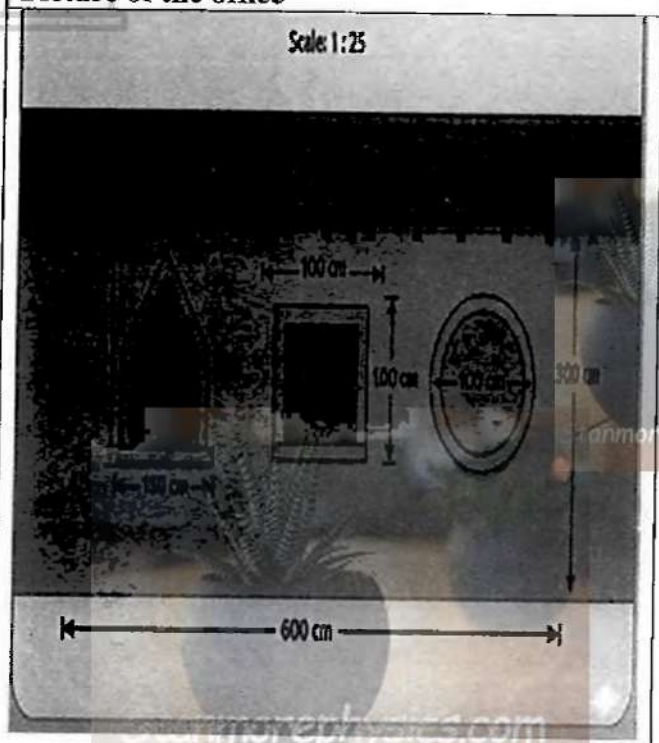
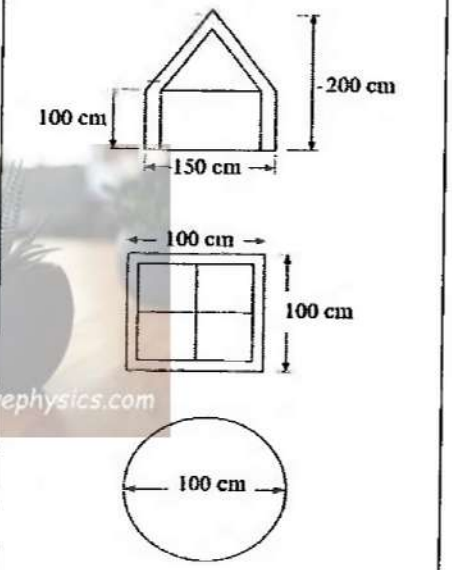
3.3.3 Calculate how many grams of the following nutrients are found in the potting soil:

(a) Calcium (3)
(b) Copper (2)
(c) Carbon (4)

[35]

QUESTION 4

4.1 The principal of Manyunyu day care centre and the SGB decided to build the office for the principal. They decided to insert three designed windows on the one side of the office wall. The office will be painted with two coats of paint.

Picture of the office	Diagrams of the windows
	

[Adapted from drawingstutorials101.com]

Use the diagram and the information above to answer the questions that follow:

4.1.1 Mention any 2(two) shapes of the windows on the wall. (2)

4.1.2 Calculate (in cm^2) the total area of the outside wall that must be painted. (2)

You may use the following formula

Area = l × b

4.1.3 Calculate (in m^2) the total area of the three windows inserted in the wall.

You may use the following formulae:

Area of a Rectangle = l × b

Area of a square = S × S

Area of a Triangle = $\frac{1}{2}$ × b × h

Area of a circle = $\pi \times r^2$, where $\pi = 3{,}142$ (10)

4.1.4 Hence, determine (to the nearest square metre) the total area of the outside of the wall that needs to be painted. (4)

4.1.5 Use the scale above to draw a scaled drawing of the rectangular part of the window with two shapes. (6)

4.2. Paint is sold in 2 litre tins @ R187,95 and 5 litre tins @ R472,95. The paint covers 6 m^2 per litre.

Use the information above and in **4.1** to answer the questions that follow.

4.2.1 The SGB members argue that if they buy 2 litre tins, the number of tins will be three times more than the number of 5 litre tins to be purchased.

Use calculations to prove whether their argument is valid. (6)

4.2.2 The SGB want to purchase the paint, show with calculations which option will be cheaper for them. (4)

[34]

QUESTION 5

5.1. Savannah Lives in South Africa and wants to visit Zambia. ANNEXURE D in the ANSWER BOOK is a map of roads connecting Zambia and South Africa.

Use ANNEXURE D to answer the questions that follow:

5.1.1 Name the type of the map in the Annexure. (2)

5.1.2 What is the probability of Savannah choosing a country with a name which start with a "Z" from the map? Choose the correct answer: (2)

A. 0%
B. 50%
C. 25%
D. 100%

5.1.3 Calculate the total distance from Kasane to Harare (3)

5.1.4 Calculate the time it will take to travel from Harare to Kasane at an average speed of 95km/h

You may use the following formula:

$$\mathbf{D = S \times T}$$ (5)

5.2 During the December holidays Savannah plans to Visit London as a tourist one of her places of interest is to see the London Eye. The London eye has 32 capsules attached to a spoke evenly spaced around its trim. The wheel has a diameter of 120m.

Picture of the London Eye

[Source:en.wikipedia.org]

NOTE: A capsule is a glass pod mounted on the wheel, fully enclosed and climate Controlled, carrying passengers safely while safely giving panoramic views.

Use the picture and the information above to answer the questions that follow:

5.2.1 Define the word diameter according to context. (2)

5.2.2 Calculate the circumference of the wheel.

You may use the following formula:

$C = 2 \times \pi \times r$ (3)

5.2.3 Savannah estimated that the distance between two adjacent spokes along the trim is exactly 12m. Prove with calculations if she is **correct** or **not correct.** (3)

5.2.4 Explain why the capsules are mounted externally on the wheel rather than inside the frame. (2)

[22]

TOTAL: 150

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NSC SEPTEMBER 2026 Answer Book

SCHOOL'S NAME					
NAME And SURNAME					
GRADE AND CLASS					
DATE		BOOK NUMBER		OF	BOOKS
SUBJECT NAME	**MATHEMATICAL LITERACY**	PAPER NUMBER		2	

MARKER/NASIENER			MODERATOR'S INITIALS IN RELEVANT BLOCK									
Question	Marks	Marker Initials	Marks	DH	Marks	DM	Marks	PM	Marks	DBEM	Marks	EM
1												
2												
3												
4												
5												
		TOTAL TOTAAL										
									READ NSTRUCTIONS ON NEXT PAGE.			

FOLLOW THESE INSTRUCTIONS CAREFULLY.

1. Clearly write your name and surname in the space provided.
2. Answer ALL the questions in the spaces provided.
3. No pages may be torn from this answer book.
4. Answers must be written in black/blue ink as distinctly as possible.
5. Read all the instructions which may be given on the examination paper.
6. Candidates may not retain an answer book or remove it from the examination room.
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.

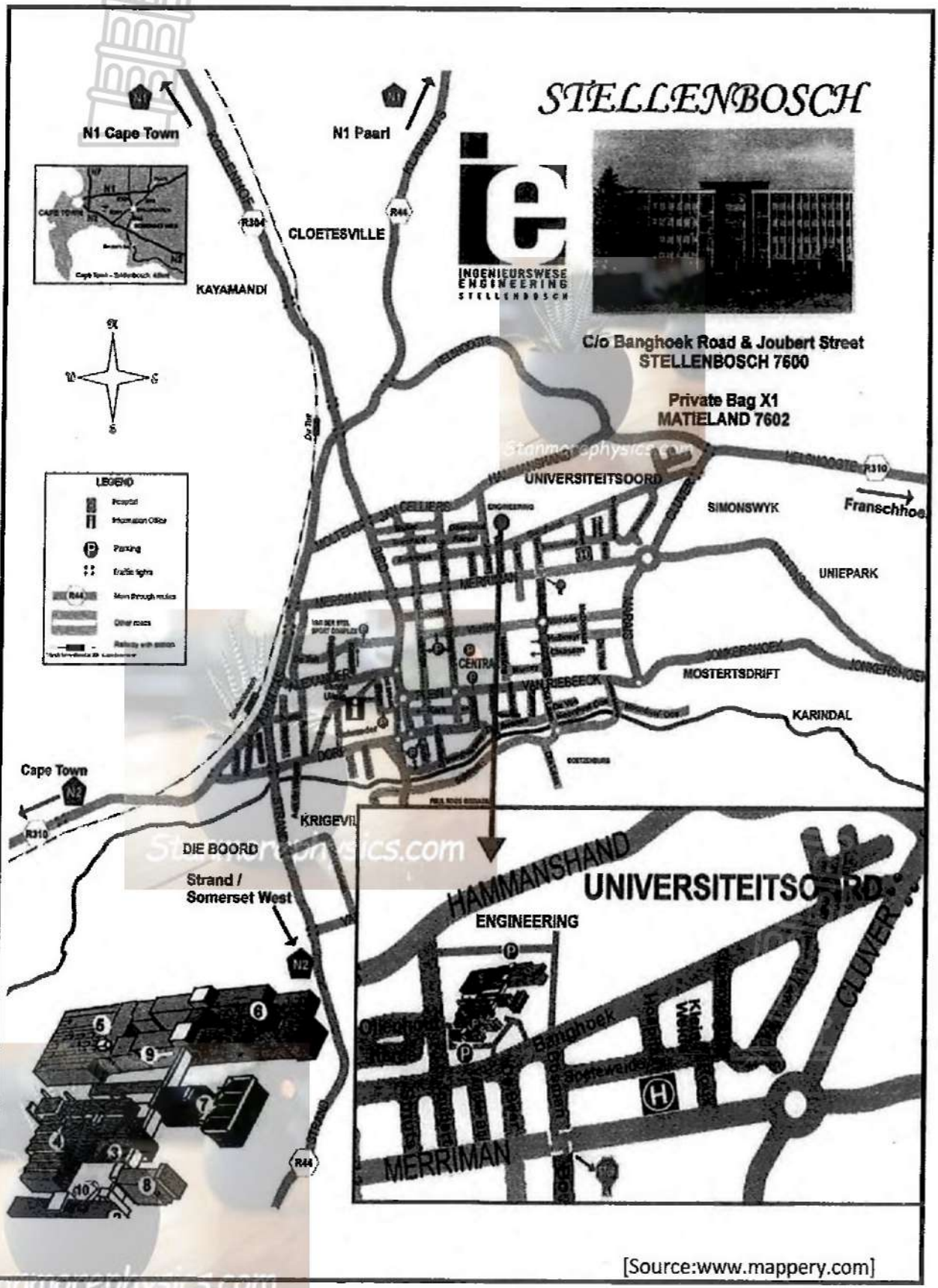
QUESTION 1

	Solution	Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)
1.2.1		(2)

	Solution	Marks
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)
1.3.5		(2)
		[30]

QUESTION 2

ANNEXURE A QUESTION 2.1



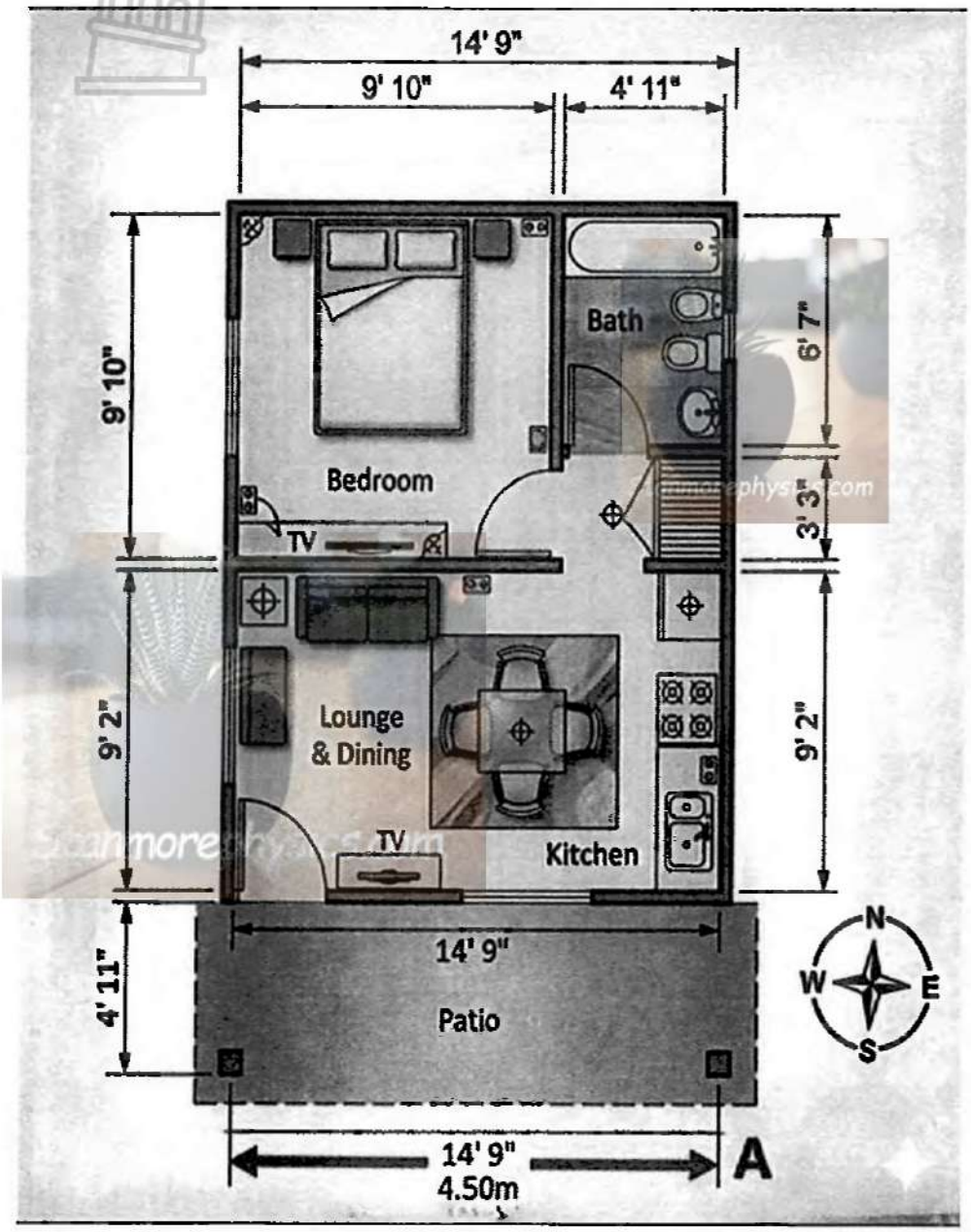
[Source:www.mappery.com]

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

ANNEXURE B

QUESTION 2.2

FLOOR PLAN OF CLAIRE'S FLAT



[Source: Houseplans .com]

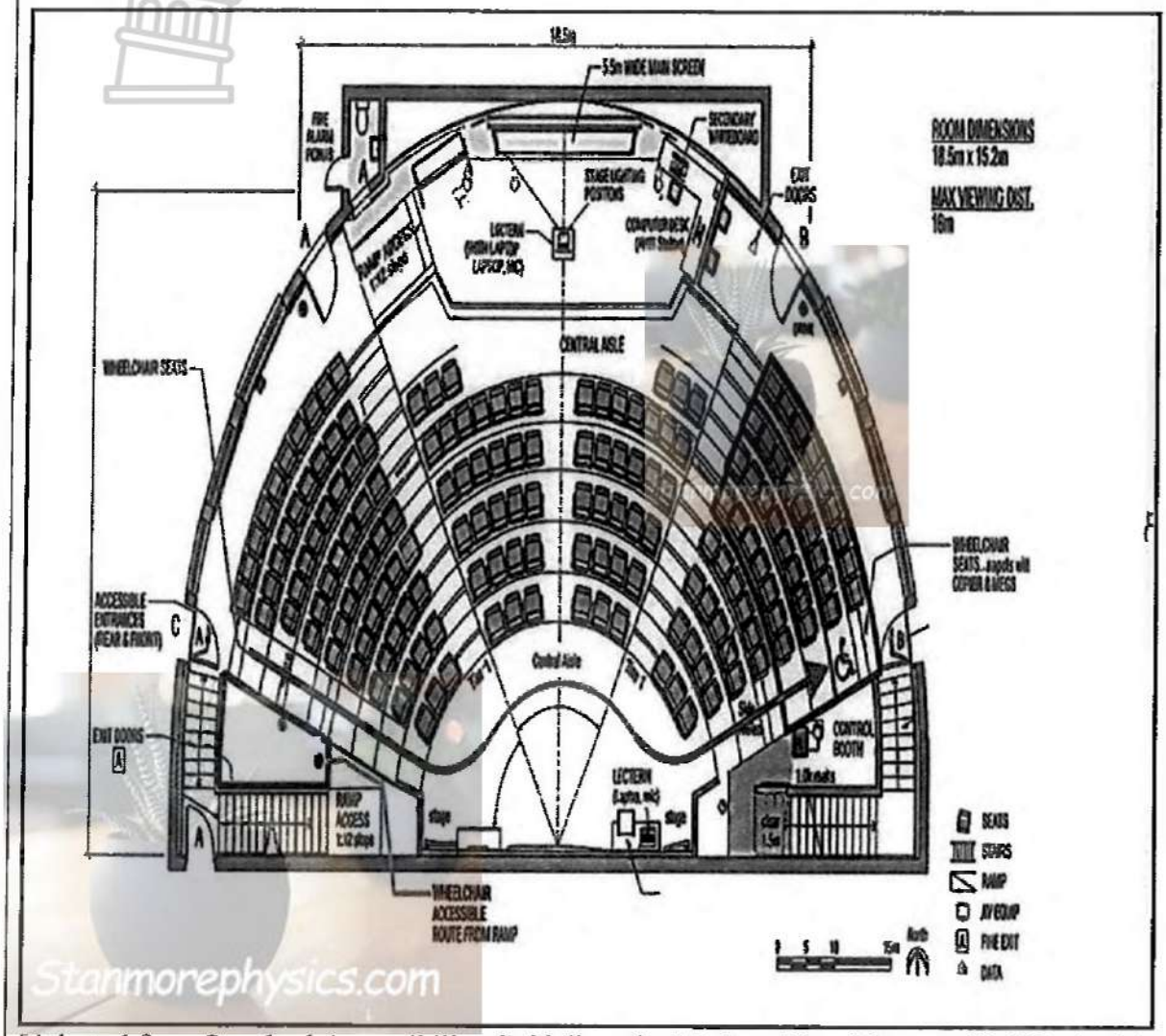
NOTE:
10' 5" = 10 feet and 5 inches
1foot = 0,3048 m; 1 inch = 2,54 cm

	Solution	Marks
2.2.1		(2)
2.2.2		(4)
2.2.3		(2)
2.2.4		(2)
2.2.5		(4)

ANNEXURE C

QUESTION 2.3.

LAYOUT PLAN OF A MODERN TIERED LECTURE HALL



[Adapted from Standard Accessibility Guidelines for Modern Tiered Lecture Hall Design]

	Solution	Marks
2.3.1		(2)
2.3.2		(2)
2.3.3		(2)
2.3.4		(3)
		[29]

QUESTION 3

	Solution	Marks
3.1.1		(3)
3.1.2		(4)
3.1.3		(3)
3.1.4		(4)

	Solution	Marks
3.2		(7)
3.3.1		(2)
3.3.2		(3)

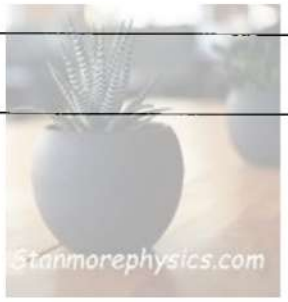
	Solution	Marks
3.3.3 (a)		(3)
3.3.3 (b)		(2)
3.3.3 (c)		(4)
		[35]

QUESTION 4

	Solution	Marks
4.1.1		(2)
4.1.2		(2)
4.1.3		(10)

	Solution	Marks
4.1.4		(4)
4.1.5		(6)
4.2.1		(6)

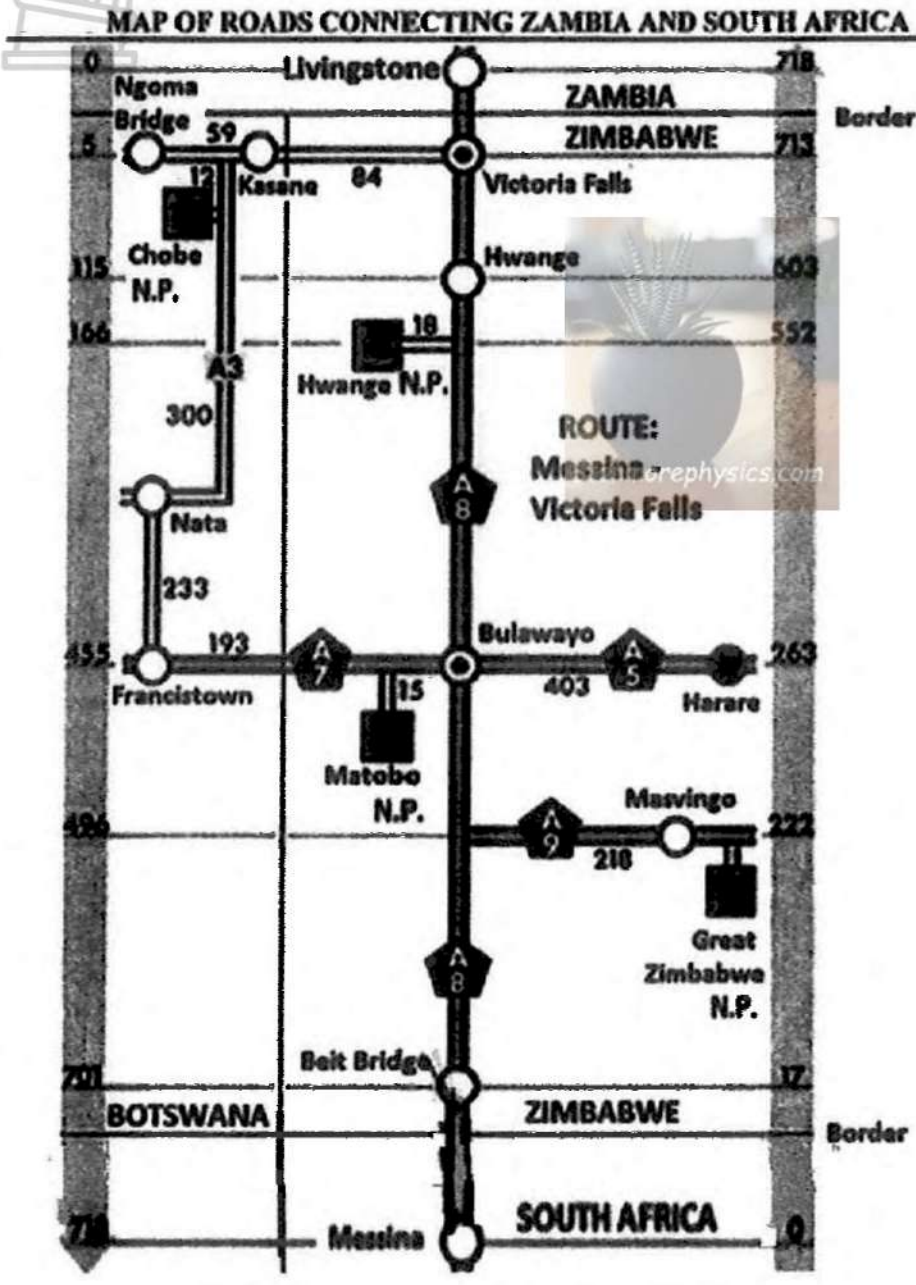
4.2.2		(4)
		[34]



QUESTION 5

QUESTION 5.1

ANNEXURE D



[Source : www.bing.com]

	Solution	Marks
5.1.1		(2)
5.1.2.		(2)
5.1.3		(3)
5.1.4		(5)
5.2.1		

		(2)
	Solution	**Marks**
5.2.2		(3)
5.2.3		(3)
5.2.4		(2)
		[22]

	Additional Space	Marks

	Additional Space	Marks

TOTAL: 150

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GRADE 12

MATHEMATICAL LITERACY P2

SEPTEMBER EXAMINATION 2026

MARKING GUIDELINE

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 table / 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. /Penalisering, bv. Vir geen eenhede, verkeerde afronding ens.
R	Rounding off / Afronding
NPR	No penalty for rounding / Geen penalisering vir korrekte afronding nie
NPU	No penalty for omitting correct unit / Geen penaliseringe indien die eenheid uitgelaat is nie, maar wel indien 'n verkeerde eenheid gebruik word
AO	Answer only / Slegs antwoord
MCA	Method with consistent accuracy / Metode met volgehoue akkuraatheid

This marking guideline consists of 15 pages
***Hierdie nasienriglyne bestaan uit* 15 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.
- Rounding is an independent mark.
- General principle for marking, if a candidate makes one mistake one mark is deducted.
- A conclusion mark can only be given if relevant calculations preceedes it.
- No penalty for rounding (NPR)if the first decimal is correct.

LET WEL:

- Indien 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.
- Indien 'n kandidaat 'n poging tot 'n vraag deurgehaal (gekanselleer) het en NIE die oplossing oorgedoen het nie, merk die deurgehaalde (gekanselleerde) weergawe.
- Konsekwente akkuraatheid (KB) is van toepassing in ALLE aspekte van die merkriglyne; dit stop egter by die tweede berekeningsfout.
- Indien die kandidaat enige ekstra oplossing aanbied wanneer daar van 'n grafiek, tabel, uitlegplan en kaart gelees word, word daar vir elke ekstra item gepenaliseer.
- Afronding is 'n onafhanklike merk.
- Algemene beginsel vir nasien, as 'n kandidaat een fout maak, word een punt afgetrek.
- 'n Gevolgtrekkingspunt kan slegs toegeken word indien relevante berekeninge dit voorafgaan.
- Geen penalisasie vir afronding (NPR) indien die eerste desimaal korrek is nie.

QUESTION/ VRAAG 1 [30 MARKS/ PUNTE] Answer only AO- full marks/ Beantwoord slegs AO - volpunte			
Q	**Solution/ Oplossing**	**Explanation/ Verduideliking**	**T & L**
1.1.1	125 × 2 ✓ MA 250 g ✓ A	2 A correct answer (2)	M L1
1.1.2	$\frac{1}{2} \times 2$ ✓ 1 Cup / *Koppie*✓ A	1M for multiplying by 2 1A correct answer (2)	M L1
1.1.3	12 ✓✓ A	2A correct answer (2)	M L1
1.1.4	$\frac{1}{3} \times 20$ min ✓M 6.67 minutes ✓A	1M multiply by 20 1 A correct answer (2)	M L1
1.1.5	B ✓✓ A	2A correct answer (2)	M L1
1.2.1	One unit on the baking tray represents 10 units in real life. / *Een eenheid op die bakplaat verteenwoordig 10 eenhede in die werklike lewe* ✓✓ A	2A correct explanation (2)	MP L1
1.2 .2	12 ✓✓A	2 A correct answer (2)	MP L1
Q	**Solution/ Oplossing**	**Explanation/ Verduideliking**	**T & L**
1.2.3	3 cm ✓✓ A	2 A correct answer (2)	M L1
1.2.4	Rectangular / Reghoekig ✓✓ A	2A correct answer (2)	M L1

1.2.5	$\frac{5}{12}$ ✓ ✓ A	A correct answer (2)	M L1
1.3.1	E ✓✓ A	2A correct answer (2)	MP L1
1.3.2	A ✓✓ A	2A correct answer (2)	MP L1
1.3.3	D ✓✓ A	2A correct answer (2)	M L1
1.3.4	F✓✓ A	2A correct answer (2)	MP L1
1.3.5	I ✓✓ A	2A correct answer (2)	M L1
		[30]	

QUESTION/ VRAAG 2 (29 MARKS/ PUNTE)			
Q	**Solution/ Oplossing**	**Explanation/ Verduideliking**	**T & L**
2.1.1	Banghoek and Joubert Street/Joubertstraat ✓✓ RT **OR OF** Hammanshand and Joubert Street/Joubertstraat ✓✓ RT	2RT correct answer (2)	MP L1
2.1.2	National road / Nasionale pad ✓✓ A	2A correct name (2)	MP L1
2.1.3	Marais Street / Marais straat ✓✓A	2A correct street (2)	MP L2
2.2.1	Floor plan shows the design and dimensions of the inside of Claire's flat, from a top view/ *Die vloerplan toon die ontwerp en afmetings van die binnekant van Claire se woonstel, vanuit 'n bo-aansig.* **OR / *OF*** Floor plan shows the design and dimensions of the inside of a building from the top view. /*'n Vloerplan toon die ontwerp en afmetings van die binnekant van 'n gebou vanaf die bo-aansig.*	2A correct answer (2)	MP L1

Q	Solution/ Oplossing	Explanation/ Verduideliking	T & L
2.2.2	L= 9′ × 0,3048 + (10″ × 2,54cm) ÷100 ✓C = 2,7432 m + 0,254 m ✓A = 2,9972 m ✓CA Valid / *Geldig* ✓ O	1A correct conversion 1A simplification 1CA correct answer 1 O Justification (4)	MP L4
2.2.3	1✓✓A	2A correct answer (2)	MP L1
2.2.4	4 : 3 ✓✓	1A both correct values 1A correct order (2)	MP L2
2.2.5	✓ 65 mm = 4,50 m ×1 000 ✓ C 65 mm = 4 500 mm (÷ 65) ✓ M 1: 69,2307692... 1: 69 ✓ CA **OR / *OF*** 6,5 cm ✓ A 6,5 cm = 4,50m ×1 00 ✓ C 6,5 cm = 4 50cm (÷ 6,5) ✓ M 1: 69,2307692… 1: 69 ✓CA	1A measured value 1C correct conversion 1M dividing by 65 1CA simplification **Accept: 64 – 66 mm** **OR** 1A measured value 1C correct conversion 1M dividing by 6,5 1CA simplification **Accept: 6,4 – 6,6 cm** NPR (4)	MP L3
2.3.1	Bar scale/ *Staafskaal* / Linear scale/ *Lineêrskaal* / Graphic scale/ *Grafiese skaal* ✓✓RT	2RT correct scale (2)	MP L1

2.3.2	It remains accurate even when the map or plan is resized / *Dit bly akkuraat selfs wanneer die kaart of plan se grootte verander word.*✓✓ O **OR/ OF** It grows or shrinks at the same rate as the map / plan / *Dit groei of krimp teen dieselfde tempo as die kaart / plan* ✓✓A **OR /OF** Bar scale is quick and easy to use / *Die staafskaal is vinnig en maklik om te gebruik.* ✓✓A	2 O reasoning (2)	MP L4
2.3.3	166 Seats / *Sitplekke* ✓✓A	2A correct answer (2)	MP L1
2.3.4	✓ A $P = \frac{33}{166}$ ✓ A $= 0{,}198795180\ldots$ $= 0{,}199$ ✓ R	1A numerator 1A denominator 1R correct rounding (3)	P L2
		[29]	

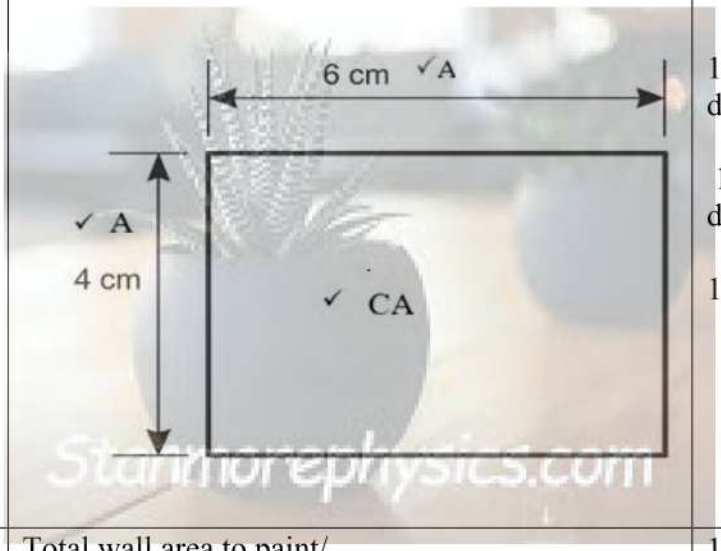
QUESTION/ VRAAG 3 [35 MARKS/ PUNTE]

Q	Solution/ Oplossing	Explanation/ Verduideliking	T & L
3.1.1	Volume of soil / *Volume van grond* = 4 480 cm^3 × 83% ✓ M = 3 718,4 cm^3 ✓ CA = 3 700 cm^3 ✓ R	1M multiplying by 83% 1CA volume of soil 1R correct rounding (3)	M L2
3.1.2	Volume of a cylinder / *Volume van 'n silinder* $= \pi \times radius^2 \times height/\ hoogte$ ✓ R ✓ 1SF = 3,142 × $(7{,}5\ cm)^2$ × 40 cm = 7 069,5 cm^3 ✓CA = 7 069,5 cm^3 ✓ ✓ R ✓ 1SF	1A radius 1SF substitution 1CA answer 1A correct unit (4)	M L2
3.1.3	Thickness both sides / *Dikte aan beide kante* = (2,5 mm ÷ 10) × 2 = 0,25 cm × 2 ✓A = 0,5 cm Inner diameter / *Binnediameter* = (75 mm ÷ 10) × 2 = 7,5 cm × 2 = 15 cm ✓M Outer diameter / *Buitenste deursnee* = 15 cm + 0,5 cm ✓ M = 15,5 cm **OR/*OF*** Outer / *Buitenste* radius = 75 mm + 2,5 mm = 77,5 mm ✓M Outer diameter/ *Buitenste deursnee* = 77,5 mm × 2 ✓ A = 155 mm ✓ A	1A convert and multiply by 2 1A converting and multiplying by 2 1 M addition 15cm and 0,5 cm **OR** 1 M adding 2,5mm 1A multiply by 2 1CA correct answer (3)	M L2

3.1.4	Number of pots lengthwise / *Aantal potte in die lengte* = 70 ÷15,5 = 4,5 ∴ 4 pots / *potte* ✓ A ✓ M Length/ *Lengte* = 15,5 cm × 4 = 62 cm ✓CA Width/ *breedte* = 15,5 cm × 2 = 31 cm ✓ CA	1A rounded simplification 1M multiplying 4 CA simplification of length CA simplification of width (4)	M L2
3.2	SA of cylinder/ *Buite oppervlak van silinder* = $2\pi rh + \pi r^2$ = 2 × 3,142×7,5cm×40cm + 3,142× $(7{,}5cm)^2$ ✓ SF = 1 885, 2 cm^2+ 176, 7375 cm^2 ✓ M = 2 061, 9375 cm^2 ✓ CA SA of Rect. Prism /*Buite oppervlakte van Reghoekige Prisma* = (L × W) + 2 (L × H) + 2 (W × H) = (14cm ×8cm) + 2 (14cm × 40cm) + 2 (8cm × 40cm) ✓ SF = 112 cm^2+ 1 120cm^2 + 640cm^2 ✓ M = 1 872 cm^2 ✓ CA Manufacturing the rectangular pot is cost effective/ *Die vervaardiging van die reghoekige pot is koste-effektief* ✓ O	1SF correct substitution 1M adding 1CA Simplification 1SF correct substitution 1M adding 1CA Simplification 1O justification (7)	M L4
3.3.1	R78,99 for 14 kg Cost per kg/ *Koste per kg* = R78,99 ÷ 14 ✓ MA = R5,64 ✓ CA	1MA dividing by 14 1CA answer per kg (2)	M/F L2
3.3.2	1 ℓ = 0,001 m^3 X = 0,030 m^3 Volume = 30 litres /*liter* ✓A Number of cups / *Aantal koppies* = 30 000 mℓ÷ 250 mℓ ✓ C	1A number of litres 1C conversion 1CA number of cups (3)	M L3

	=120 ✓CA		
3.3.3 (a)	Calcium/ *Kalsium* = 14 kg × 0,5% ✓ M = 0,07 kg ✓ CA = 70 g ✓ C **OR/*OF*** ✓ C Calcium / *Kalsium* = 14 000 g × 0,5% ✓ M = 70 g ✓ CA	1M multiply 14 Kg by 0,5% 1 CA simplification 1C answer in grams **OR/OF** 1C conversion 1M multiply 14 000 by 0,5% 1 CA simplification (3)	M L2
3.3.3 (b)	Copper/ *Koper* = 14 000 g × 5 ÷ 1 000 000 ✓ M = 0,07 g ✓ CA	1M multiplying by 5 parts per million 1CA Correct answer (2)	M L2
3.3.3 (c)	Nitrogen/ *Stikstof* = 14 000 g ×1,6% ✓ M = 224 g ✓ CA Carbon/ *Koolstof* = 224g × 15,5 ✓ M = 3 472 g ✓ CA	1M multiplying by 1,6% 1CA answer in grams 1M multiplying by 15,5 1CA answer in grams (4)	M L3
		[35]	

QUESTION/ VRAAG 4 [34 MARKS/ PUNTE]			
Q	**Solution/ Oplossing**	**Explanation/ Verduideliking**	**T & L**
4.1.1	Square / *Vierkant* ✓ Triangle / *Driehoek* ✓ Rectangle / *Reghoek* ✓ Circle / *Sirkel* / Oval / *Ovaal* ✓ (Any two/ enige twee)	2A correct shapes (2)	M L 1
4.1.2	Area of the wall / *Oppervlakte van die muur* Area/ *Oppervlakte* = l × b = 600 cm × 300 cm ✓ SF = 180 000 cm^2 ✓ CA	1SF correct substitution 1CA correct answer **NPU** (2)	M L2
4.1.3	Area of square window/ *Oppervlakte van vierkantige venster* = s^2 = $(1m)^2$ ✓ SF = $1m^2$ ✓ CA Area of circular window/ *Oppervlakte van sirkelvormige venster* = π × r^2 = 3,142 × $(0,5m)^2$ ✓ SF = 0,7855 m^2 ✓CA Area of Rec and triangular window / *Oppervlakte van Reg en driehoekige venster* = (l × b) + ($\frac{1}{2}$ × b × h) ✓SF = (1,5m × 1m) + ($\frac{1}{2}$ × 1,5m × 1m) ✓ SF = 1,5m^2 + 0,75m^2 ✓ S = 2,25m^2 ✓CA Total Area / *Totale Area* = 1m^2+ 0,7855 m^2 +2,25m^2 ✓ MCA = 4,0355m^2 ✓ CA	1SF correct substitution 1CA correct answer 1SF correct substitution 1CA correct answer 1SF correct substitution of rectangular part 1SF substitution of triangular part 1M addition of 2 areas 1CA correct answer 1MCA adding correct areas 1CA correct answer (10)	M L3

Q	Solution / Oplossing	Explanation/ Verduideliking	T & L
4.1.4	180 000 $cm^2 \div 100^2 = 18m^2$ ✓ C Area to be painted / *Oppervlakte wat geverf moet word* $= 18m^2 - 4{,}0355m^2$ ✓M $= 13{,}9645m^2 \times 2$ ✓ M $= 27{,}929m^2$ ✓CA	1A correct conversion 1M subtracting area 1A multiplying by 2 1CA correct answer (4)	MP L3
4.1.5	Dimensions/ *Afmetings*: Length/ Lengte = 150cm ÷ 25 = 6 cm Width / *Breedte* = 100cm ÷ 25 = 4 cm  	1MA using scale 1A simplification 1CA simplification 1A correct Length drawn 1A correct width drawn 1 CA shape (6)	MP L3
4.2.1	Total wall area to paint/ *Totale muuroppervlakte om te verf* $= 27{,}929m^2 \div 6m^2/l$ ✓M = 4,654333 $= 5\ l$ ✓ *R* Number of 2l tins/ *Aantal 2l-blikkies* $= 5\ l \div 2$ ✓ M = 2,5 = 3 ✓A Number of 5l tins/ *Aantal 5l-blikke* $= 5\ l \div 5$ = 1 ✓A	1M dividing $6m^2$ 1 R rounding answer 1M dividing by 2 1A number of 2l tins 1A number of 5l tins 1O Justification	MP L4

	The statement is valid buying 2*l* tins will be 3 times more than buying 5*l*/ *Die stelling is geldig, die koop van 2 l blikkies sal 3 keer meer wees as die koop van 5l* ✓	(6)	
4.2.2	5l = R472,95 ✓RT 2l = 3 × R187,95 ✓M = R563,85 ✓ CA Buying a 5 *l* tin will be cheaper /*Koop van 5 lblik sal goedkoper wees* ✓ O	1RT for R472,95 1M multiplying R215 by 3 1CA correct answer 1O Justification (4)	M/F L4
		[34]	

QUESTION/VRAAG 5 [22 MARKS/ PUNTE]			
Q	**Solution/ Oplossing**	**Explanation/ Verduideliking**	**T&L**
5.1.1	Strip Map / *Strookkaart* ✓✓ A	2A correct answer (2)	MP L1
5.1.2	B ✓✓ A **OR/ *OF*** 50 % ✓✓ A	2 A correct percentage (2)	P L2
5.1.3	✓ A Total Distance/ *Totale Afstand* = 403km + 450km + 84km ✓ RT = 937km ✓ CA	1RT 403 and 84 1A adding 450 1CA correct answer (3)	MP L2
5.1.4	D = S x T / A = S x T T = $\frac{D}{S}$ ✓ / T = $\frac{A}{S}$ ✓ RT = $\frac{937\ km}{95\ km/h}$ ✓ SF = 9,863157894736842 h ✓CA = 9h + 0, 863157894736842 x 60 ✓ MCA = 9h 51,79min ✓ MCA	1A changing the subject of the formula 1 SF substitution 1CA simplification 1MCA multiplying by 60 1CA correct answer (5)	MP L3
5.2.1	Diameter is a straight line passing through the centre of London eye and touching both ends of the London eye / *Die deursnee is 'n reguit lyn wat deur die middelpunt van die London Eye loop en aan beide kante van die London Eye raak.* ✓✓ A	2 A correct defination (2)	M L1

Q	Solution/ Oplossing	Explanation/ Verduideliking	T & L
5.2.2.	$C = 2 \times \pi \times r$ ✓A $= 2 \times 3{,}142 \times 60m$ ✓SF $= 377{,}04m$ ✓CA	1A radius 1SF Substituting correct values 1CA Simplification (3)	M L2
5.2.3	377,04 ÷ 32 ✓ M 11,7825 11,78 ✓ SF Not Correct / Nie korrek nie ✓ O	**MCA 5.2.2** 1M dividing by 32 1 CA simplification 1O justification (3)	MP L4
5.2.4	External mounting allows unobstructed 360° views/ *Eksterne montering bied onbelemmerde 360°-uitsigte* ✓ ✓ O OR / *OF* maximizes visibility/ *maksimeer sigbaarheid* ✓ ✓ O OR / *OF* enhancing tourist experience/ *toeriste-ervaring verbeter* ✓✓ O (Any one of the explanations/ *Enige een van die verduidelikings*)	2O justification (2)	MP L4
		[22]	
		TOTAL/ TOTAAL : 150	