



GRADE 12

MATHEMATICAL LITERACY P2

31 AUGUST 2026

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Marks: 150

Time: 3 hours

This paper consists of 14 pages and a 17-page SPECIAL ANSWER BOOK.

INSTRUCTIONS AND INFORMATION:

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Answer ALL 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 the calculations clearly.
5. Round off ALL final answers appropriately 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 has a list of explanations and definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	A diagram or picture having length and width only.
B	A system of measurement using inches, pounds, feet, gallons and miles.
C	A prism that is named after the 3-dimensional shape that has rectangles as its faces and base.
D	Determines how many times smaller an object shown on a plan or map is than its actual size.
E	A map of a small area such as a town or city.
F	A map that shows information about the profile of a route as seen from the side.
G	The amount of space an object can hold.
H	A system of measurement that uses metres, litres, kilograms.

Use TABLE 1 above and match an explanation or a definition with EACH of the concepts below. Write only the letter (A – H) next to the question numbers (1.1.1 to 1.1.5), e.g. 1.1.6 K.

- 1.1.1 Scale (2)
- 1.1.2 Imperial System (2)
- 1.1.3 Capacity (2)
- 1.1.4 2-D models (2)
- 1.1.5 Elevation map (2)

1.2 Selena uses the following recipe to bake “Butterfly Cupcakes”:

Ingredients: (makes ONE dozen) • 115 g Soft Margarine • 120 g Castor Sugar • 2 Eggs • 110 g Self-raising Flour • $\frac{1}{2}$ tsp Baking Powder • 1 tsp Lemon juice (optional) For the Buttercream: • 100 g Margarine • 200 g Icing Sugar • $\frac{1}{2}$ tsp Lemon juice Baking time: 15 minutes	
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Adapted from: <https://bakingwithgranny.co.uk>

Study the information above and answer the questions that follow.

1.2.1 State the number of butterfly cupcakes made by this recipe. (2)

1.2.2 Convert the mass of castor sugar to milligrams. (2)

1.2.3 Calculate in grams, the total amount of margarine needed for this recipe. (2)

1.2.4 Selena puts the butterfly cupcakes in the oven at 16:10.

Choose the time (A, B or C) at which she should remove it from the oven.

A		B		C	
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1.2.5 Determine how much self-raising flour would be needed to make 3 dozen butterfly cupcakes. (2)

1.3

A travel agency has the following table on their website.

Approximate distances in kilometres								
Town/City	Harrismith	Johannesburg	Kimberley	Klerksdorp	Kroonstad	Ladysmith	Mafikeng	Messina
Bloemfontein	328	398	177	288	211	410	464	928
Cape Town	1 331	1 402	962	1 271	1 214	1 413	1 343	1 932
Colesberg	554	624	292	514	437	636	672	1 154
Durban	306	578	811	645	537	236	821	1 118
East London	822	982	780	872	795	752	1 048	1 512
George	1 010	1 171	762	1 061	984	1 183	1 203	1 701
Johannesburg	274	—	472	164	187	356	287	530
Kimberley	505	472	—	308	339	587	380	1 002
Ladysmith	82	356	587	421	313	—	597	894

[Adapted from www.south-africa-info.co.za/country/travel]

Use the information above to answer the questions that follow.

- 1.3.1 Name the type of table displayed above. Choose the correct option (A, B or C) (2)
- A Two-way table
 B Distance table
 C Tally table
- 1.3.2 State the approximate distance from George to Mafikeng. (2)
- 1.3.3 Give the names of the two towns furthest apart. (2)
- 1.3.4 Give in its simplest form, the ratio of the distance between Ladysmith and Harrismith to the distance between Johannesburg and Klerksdorp. (3)

[29]

QUESTION 2

2.1

Lethabo has been accepted as a first-year student to the University of Pretoria and is planning to drive from his home in Kimberley.

Use ANNEXURE A in the ANSWER BOOK to answer the questions that follow.

2.1.1 Name the type of map shown. (2)

2.1.2 Determine the distance between Kroonstad and Vereeniging. (3)

2.1.3 Calculate the total distance from Kimberley to Pretoria if he drives via the N1. (2)

2.1.4 State the probability in words, that Lethabo will drive on a National road if he drives from Kimberley to Pretoria via Potchefstroom. (2)

2.1.5 Lethabo decides to visit his family in Rustenburg. He leaves his house at 06:00 and makes the 620 km journey to his family. He plans to take the following rest breaks:

- 15 minutes in Winburg
- 15 minutes in Kroonstad
- 45 minutes in Johannesburg

Lethabo states that he will arrive in Rustenburg by 13:15 if he drives at an average speed of 100 km/h. Verify whether his statement is correct.

You may use the following:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} \quad (8)$$

2.2

Lethabo stops at Killarney Mall in Johannesburg to purchase a few items he would need for university. The floor plan of the mall is shown on ANNEXURE B.

Use ANNEXURE B in the ANSWER BOOK, to answer the questions that follow.

2.2.1 Give the general direction of Woolworths from Dischem. (2)

2.2.2 Identify the number of touch screen directories indicated on the floorplan. (2)

2.2.3 State, with a reason, whether this mall is a single storey or multi-storey building. (2)

2.2.4 Lethabo finished his shopping at Mr Price and wants to go back to his car. Lethabo parked at the entrance closest Pick 'n Pay.

Provide Lethabo with a set of directions to the entrance closest to his car. (3)

2.2.5 The actual length of Woolworths is 32,8 m.

Determine the scale of the floor plan in the form 1:... (3)

[29]

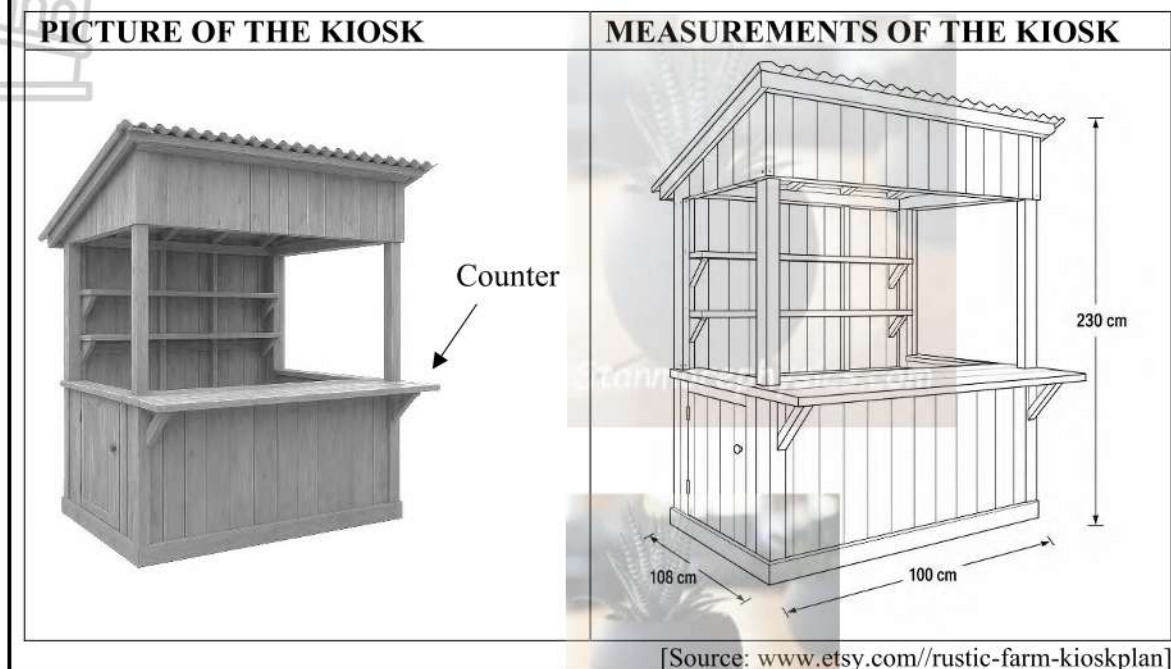


QUESTION 3

3.1

Zandile is setting up a kiosk in his community where he will sell cooldrinks and chips to earn an extra income after work.

Below is a picture and diagram of the kiosk he will use.



Use the information above to answer the question that follows.

3.1.1 Determine the height of the counter in meters if it is 45% of the total height. (3)

3.1.2 Zandile's kiosk hours are from 17:20 to 20:00 during weekdays and 06:00 to 13:00 on weekends (Saturday and Sunday).

Calculate the number of hours and minutes his kiosk is open per week. (5)

3.1.3 The total surface area of the kiosk to be varnished is $9,48 \text{ m}^2$.
A can of weatherproof varnish costs R249,89 per 500 ml.

According to the instructions the varnish has a spread rate of

- $0,009 \text{ m}^2$ per ml for the first coat.
- $0,015 \text{ m}^2$ per ml for the second coat.

Zandile claims that it will cost him under R1 000 if he varnishes the kiosk with two coats.

Verify his claim by calculating the cost of the varnish that needs to be bought. (8)

3.2

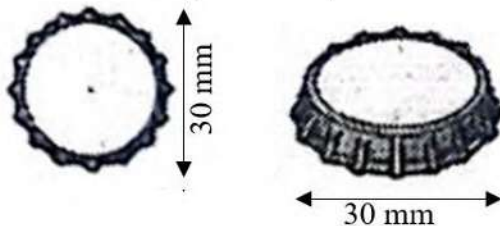
To decorate his kiosk, Zandile created a mosaic board from recycled bottle caps collected from the products he sold.

- All the bottle caps are circular and the same size.
- The caps are glued onto a rectangular cardboard.
- A wooden frame of 3 cm in width, that will fit around the mosaic board, will be made.

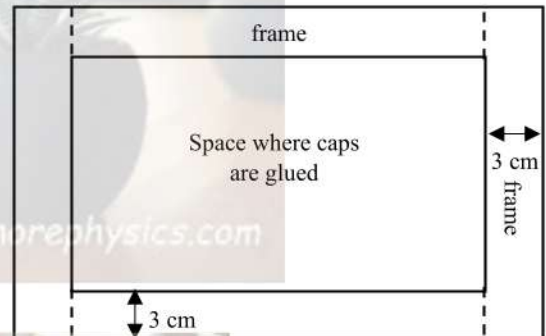
PICTURE OF MOSAIC WITH GLUED BOTTLE CAPS



NOTE: Bottle caps are all cylindrical



LINE DRAWING SHOWING THE FRAME BORDERS



Adapted from: www.etsy.com

Use the information above to answer the question that follows.

3.2.1 Calculate the length and width of the cardboard where the caps are glued. (3)

3.2.2 The mosaic board is bordered by a 3 cm wide wooden frame, with the pieces joined together without overlapping, as shown in the diagram above.

Calculate in millimetre, the minimum length of the piece of wood needed to make this frame. (5)

3.3

The bottle caps will be pasted onto the mosaic board using glue from a glue gun. A glue gun uses heat to melt the solid glue stick to a liquid that is used.

GLUE GUN WITH GLUE STICK	INFORMATION ABOUT THE GLUE USED
	• The glue sticks weigh 20 g each. • The solid to liquid conversions of the glue used in the glue stick is 0,95 g per ml • The glue used for each bottle cap is 0,7 ml

[Source: www.toolcraft.co.za]

Use the information above to answer the question that follows.

3.3.1 Determine the number of bottlecaps used in this design (2)

3.3.2 Calculate the number of glue sticks that will be needed for the mosaic board. (6)
[32]



QUESTION 4

4.1

The annual Darling Wildflower Show takes place in Darling every year. Aletta plans to attend the show and will travel from Malmesbury with three female friends.

One of the friends suggests that the fuel cost for the round trip should be divided equally among the passengers, excluding Aletta, because she is providing the vehicle for the journey.

ANNEXURE C in the Answer Book shows a Google Maps image of the route from Malmesbury to Darling as displayed on the navigation screen in Aletta's car.

Use ANNEXURE C in the ANSWER BOOK to answer the questions that follow.

- 4.1.1 Write down the names of the roads that Aletta will use when travelling along the shortest route from Malmesbury to Darling. (2)
- 4.1.2 Name the points of interest found on the R27. (2)
- 4.1.3 Determine the actual distance rounded to the nearest kilometre between Malmesbury and Darling if the measured distance on the map is 11,3cm. (4)
- 4.1.4 Aletta's vehicle has an average fuel consumption of 14 km per litre. The friend claims that each passenger should contribute exactly R50 towards the travelling expenses of the return trip.
- Given that fuel costs R25,23 per litre, determine whether this claim is correct. Show all relevant calculations to justify your answer. (6)

4.2

At the Darling Wildflower Show the group of friends attend a flower arranging workshop.

The arrangements they can recreate is shown on ANNEXURE D in the answer book.

You may use the following:

$$\text{Volume} = 3,142 \times \text{radius}^2 \times \text{height}$$

NOTE: $1\text{cm}^3 = \text{ml}$

Use the information above to answer the questions that follow

4.2.1 Determine in centimetres, the radius of a vase in Arrangement 1. (3)

4.2.2 In arrangement 1, the vase in row 1 has a height of 32 cm and with each row of vases the height decreases by 13 %.

Calculate the volume of one vase in the third row. (5)

4.2.3 The circumference of the vase in Arrangement 2 is 471,3 mm.
The length of the flower is 1,5 times the vase circumference.

Determine rounded to the nearest centimetre, the length of one flower. (3)

4.2.4 Arrangement 2 was created by the group and will be filled with water to a $\frac{1}{4}$ of the vase's capacity.

There is a 1-litre jug of water on the table for filling the arrangement.

Calculate the volume of water remaining in the jug after the arrangement has been filled.

(6)
[31]

QUESTION 5

5.1

Water polo in South Africa has rapidly become a popular sport in schools. Each team consists of 7 players (including one goalkeeper). The diagram on ANNEXURE E shows the layout and dimensions of a water polo pool.

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

- 5.1.1 Write down, in metres, the length of the paving border. (2)
- 5.1.2 Calculate the length of the re-entry area in feet. (4)
- 5.1.3 Calculate, as a simplified fraction, the probability of randomly selecting a goalkeeper out of all the players in the swimming pool during a match. (3)

5.2

Paving is placed around a swimming pool to help keep the water clean as the player climbs in and out of the pool.

Paving must be placed around the pool.

- Bricks are transported in pallets that can pave $12,5 \text{ m}^2$ per pallet
- A pallet usually contains 600 bricks
- An additional 5% bricks should be bought to compensate for breakages.

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

- 5.2.1 Determine the number of bricks needed to pave the space around a swimming pool.

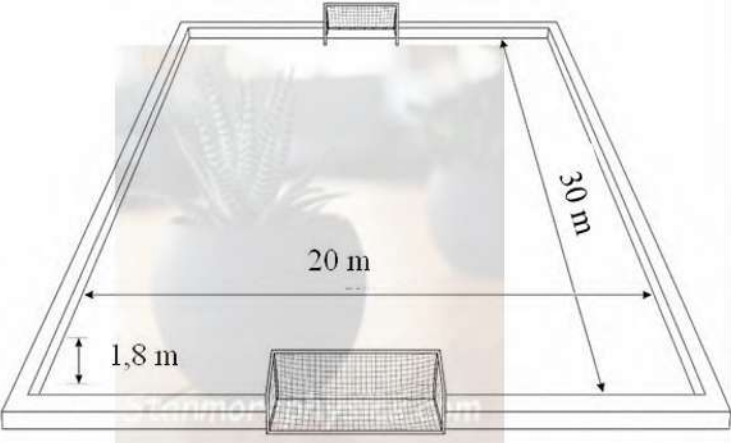
You may use the following formula:

$$\text{Area} = \text{length} \times \text{width}$$

(8)

5.3

Once a new swimming pool is complete, it needs to be filled with water as well as treated with salt.

Bag of Swimming Pool Salt – 20 Kg	3D View of Swimming Pool
	 Note: $1 \text{ m}^3 = 1000 \text{ litres}$ Volume = length x width x height [Adapted from: dimensions.com]

Use the information above to answer the questions that follow:

5.3.1 The temperature of the pool was measured at 80 °F. Convert this to °C.

You may use the following formula:

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 1,8) + 32 \quad (4)$$

5.3.2 The pool must have a salt content of 3 g per litre.

Calculate the maximum number of bags of salt that should be used in the swimming pool.

(8)
[29]

TOTAL: 150

1

FOLLOW THESE INSTRUCTIONS CAREFULLY.

1. Clearly write your name, surname and class number in the space provided.
2. Answer ALL questions in the spaces provided.
3. No pages may be torn from this answer book.
4. Read the instructions 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.
7. Do not write in the margins.
8. If you require additional space for your answers:
 - Use the additional space for rough work provided in the answer book.
 - When answering a question in the 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.

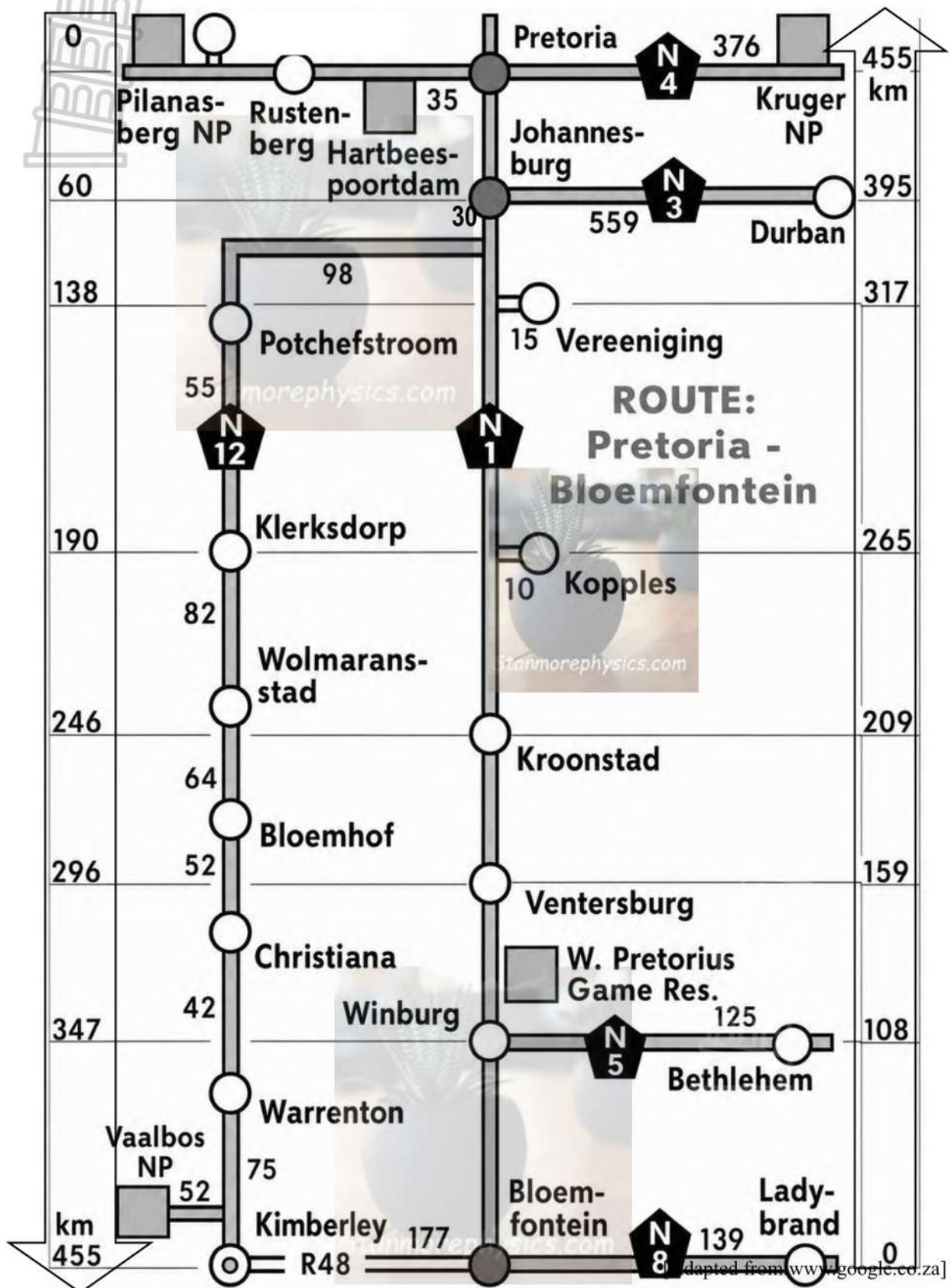
QUESTION 1

	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)
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		(3)
		[29]

QUESTION 2.1

ANNEXURE A

LETHABO'S TRAVEL ROUTE FROM KIMBERLEY TO PRETORIA



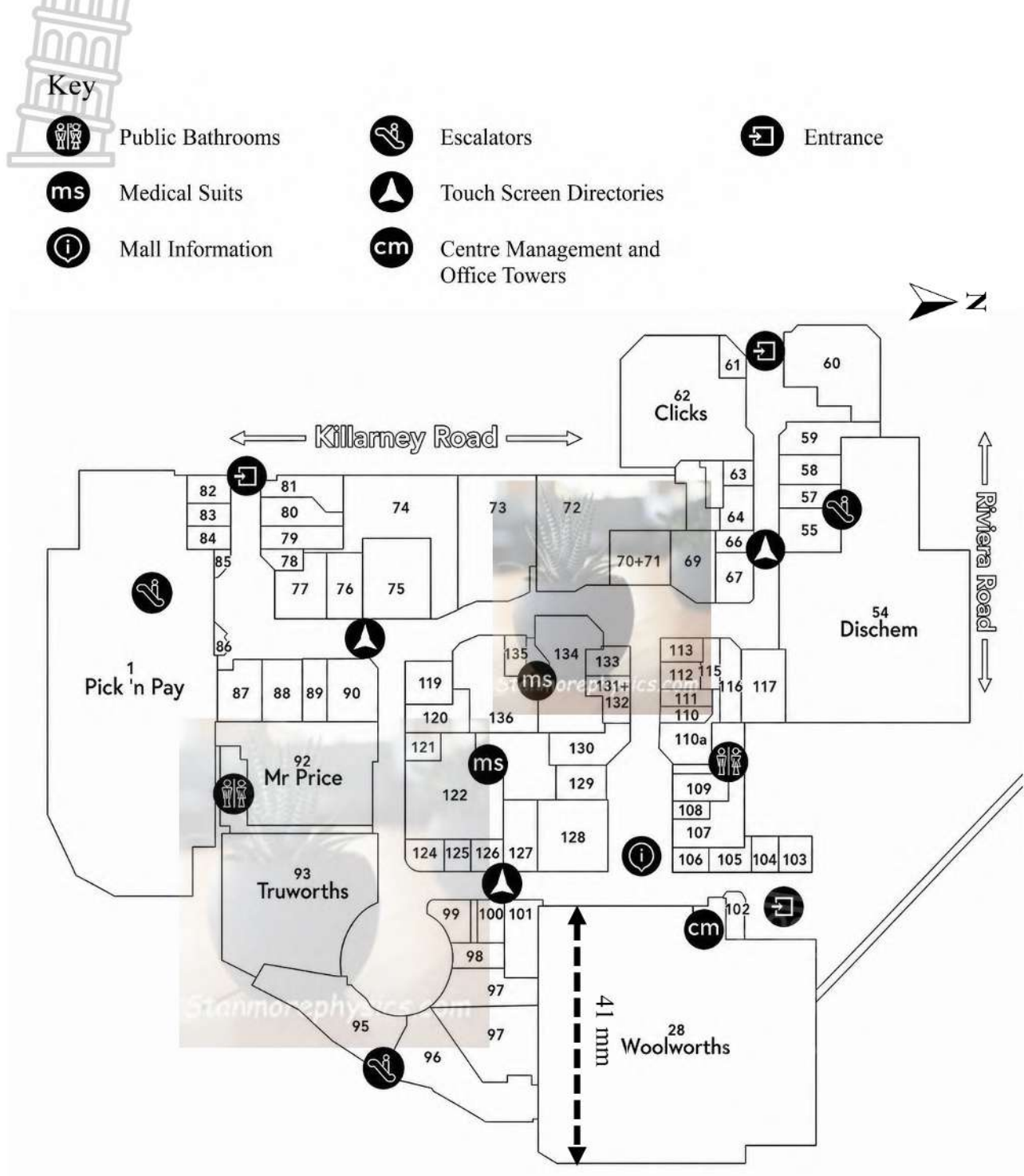
QUESTION 2

	Solution	Marks
2.1.1		(2)
2.1.2		(3)
2.1.3		(2)
2.1.4		(2)
2.1.5		(8)

QUESTION 2.2

ANNEXURE B

FLOOR PLAN OF KILLARNEY MALL



	Solution	Marks
2.2.1		(2)
2.2.2		(2)
2.2.3		(2)
2.2.4		(3)
2.2.5		(3)
		[29]

QUESTION 3

	Solution	Marks
3.1.1		(3)
3.1.2		(5)
3.1.3		(8)

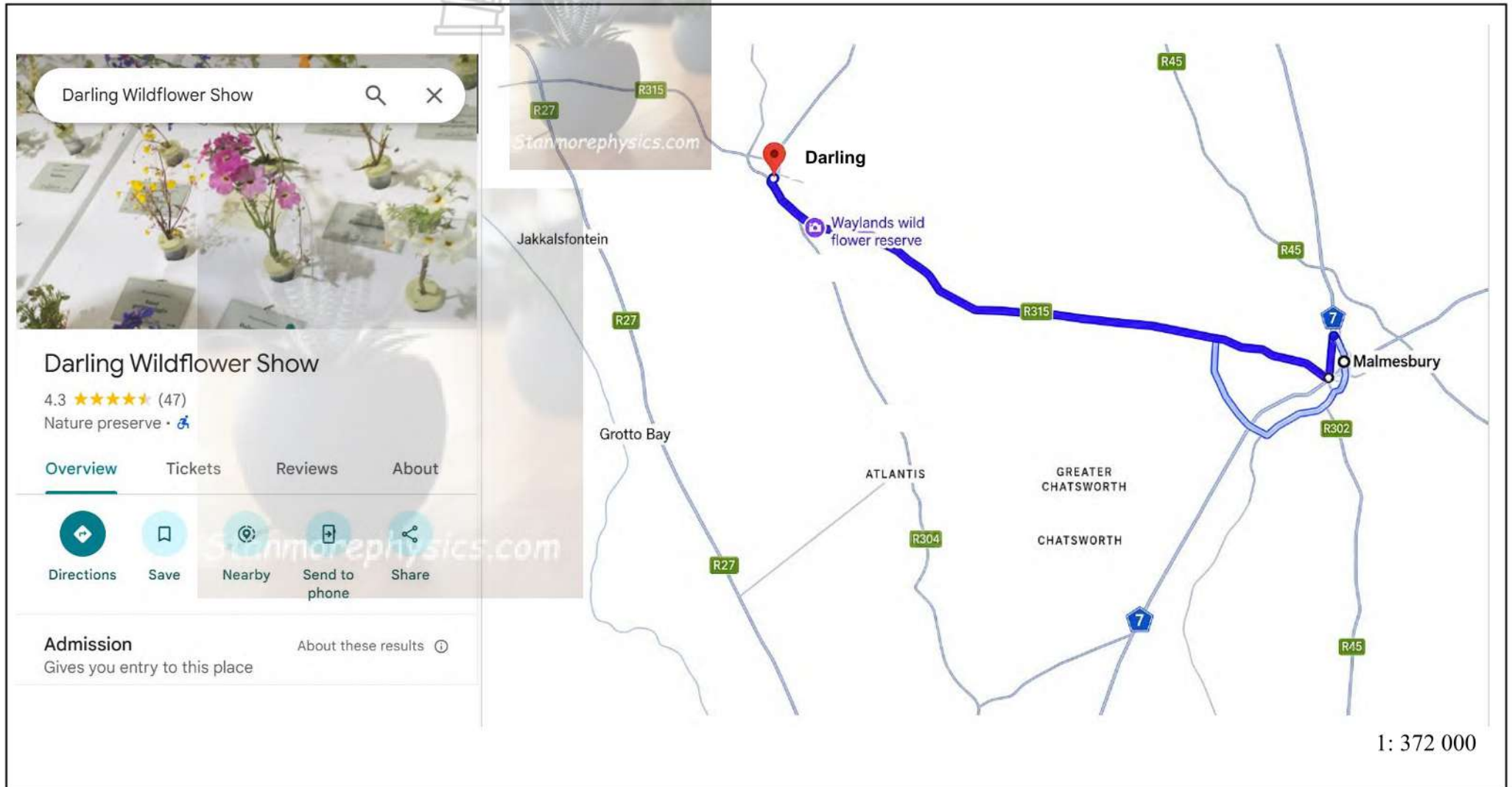
	Solution	Marks
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3.2.1		(3)
3.2.2		(5)
3.3.1		(2)
3.3.2		(6)
		[32]

QUESTION 4.1

ANNEXURE C

GOOGLE MAPS IMAGE OF THE ROUTE FROM MALMESBURY TO DARLING

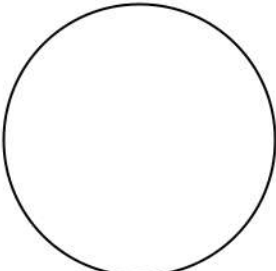


QUESTION 4

	Solution	Marks
4.1.1		(2)
4.1.2		(2)
4.1.3		(4)
4.1.4		(6)

QUESTION 4.2
ANNEXURE D

DIAGRAM AND PICTURE OF THE VASES USED FOR ARRANGEMENTS

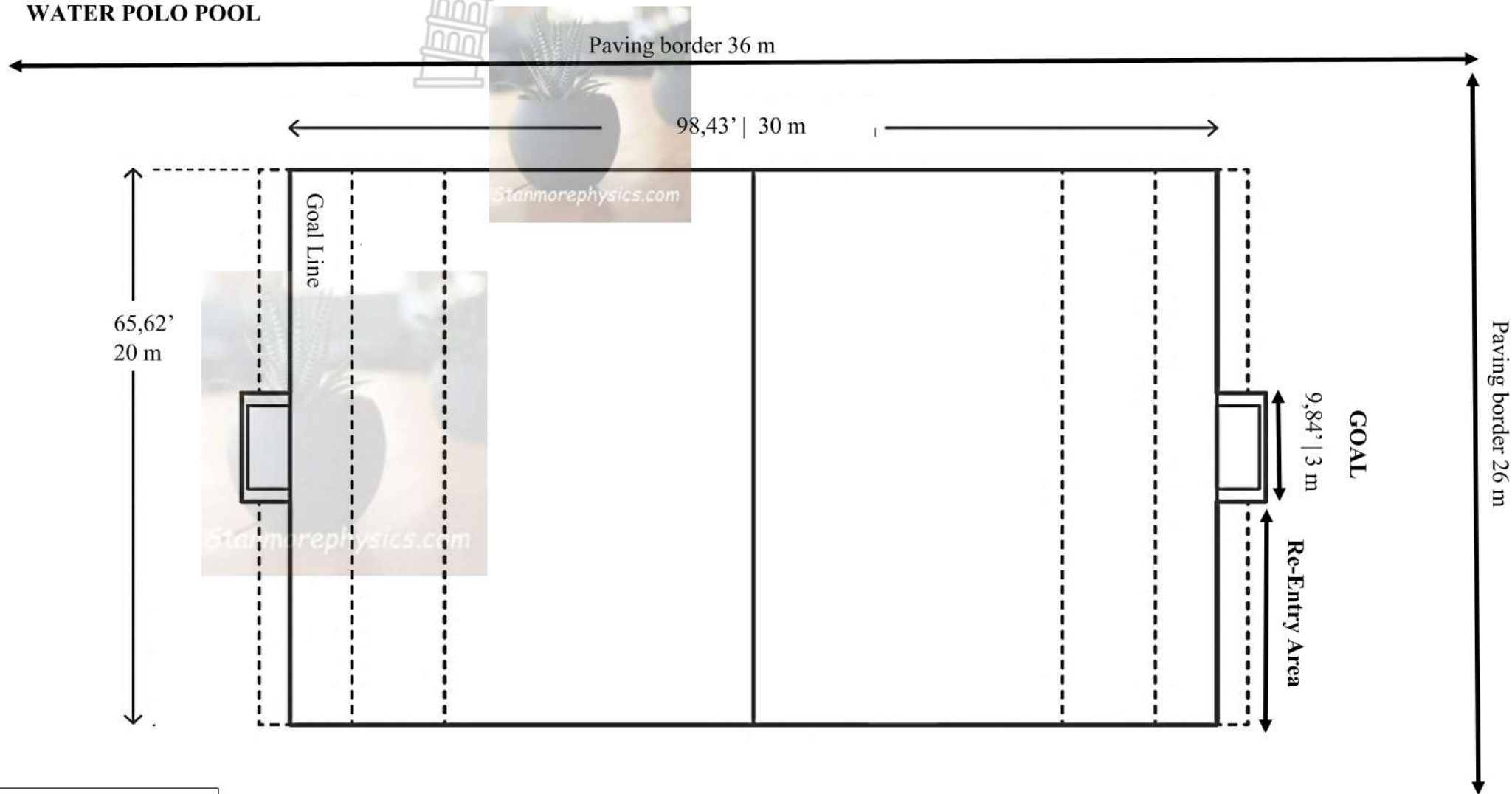
ARRANGEMENT 1: TALL FIVE VASE DISPLAY	ARRANGEMENT 2: MINIMALISTIC LOW VASE ARRANGEMENT
 [Source: https://www.pinterest.com/]	 [Source: https://www.pinterest.com/]
DIMENSIONS	DIMENSIONS
 Each vase has a diameter of 100 mm	Diameter = 150 mm Height = 120 mm 
TOP VIEW	TOP VIEW
Row 1 → ○ Row 2 → ○ ○ Row 3 → ○ ○ ○	

NOTE: $1\text{cm}^3 = 1\text{ ml}$

	Solution	Marks
4.2.1		(3)
4.2.2		(5)
4.2.3		(3)
4.2.4		(6)
		[31]

QUESTION 5.1
ANNEXURE E

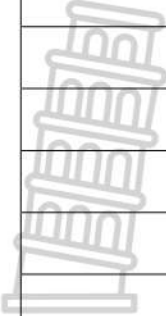
WATER POLO POOL



NOTE: 9,84' = 9,84 Feet

QUESTION 5

5.1.1		(2)
5.1.2		(4)
5.1.3		(3)
5.2.1		(8)

5.3.1		
		(4)
5.3.2		
		
		(8)
		[29]

TOTAL: 150



METRO EAST EDUCATION DISTRICT

MATHEMATICAL LITERACY

PAPER 2
SEPTEMBER 2026

MARKING GUIDELINES

MARKS: 150

Cognitive Distribution for Assessment:

	Level 1	Level 2	Level 3	Level 4
Expected:	30%	30%	20%	20%
Actual:	28%	29%	21%	22%

Per Topic Distribution for Assessment:

Topic:	Finance	Data Handling	Measurement	Maps & Plans	Probability
% of task:			55%	40%	5%
Actual:			56%	41%	3%

This marking guidelines consist of 10 pages.

Symbol/Kode	Explanation/Verduideliking
MA	Method with accuracy/Metode met akkuraatheid
MCA	Method with constant accuracy/Metode met volgehoue 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/grafiek/diagram
SF	Correct substitution in a formula/Korrekte vervanging in formule
O	Opinion/Explanation/Reasoning /Opinie/Verduideliking/redenasie
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 afronding nie
NPU	No penalty for omitting the unit, but a wrong unit is penalised. / Geen penalisasie indien die eenheid uitgelos is nie, maar 'n verkeerde eenheid word wel gepeenaliseer.
AO	Answer only/Slegs antwoord
RCA	Rounding consistent with accuracy/Afronding met volgehoue akkuraatheid

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.
- NOTE: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- Rounding is an independent mark.
- In order to award the verification / conclusion mark the candidate must have scored at least one mark in the calculations preceding the final conclusion.

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n kandidaat '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 op by die tweede berekeningsfout.
- Let wel: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.
- 'n Algemene nasienbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.
- Afronding tel as 'n afsonderlike punt.
- Ten einde die verifikasie/ gevolgtrekking punt toe te ken moes die kandidaat ten minste een punt gekry het in die berekening wat lei tot die finale gevolgtrekking.

QUESTION 1 [29 MARKS / PUNTE]		ANSWER ONLY FULL MARKS	
Q/V	SOLUTION	EXPLANATION	T&L
1.1.1	D ✓✓A	2A correct letter (2)	MP L1
1.1.2	B ✓✓A	2A correct letter (2)	M L1
1.1.3	G ✓✓A	2A correct letter (2)	P L1
1.1.4	A ✓✓A	2A correct letter (2)	M L1
1.1.5	F ✓✓A	2A correct letter (2)	MP L1
1.2.1	12 butterfly cakes ✓✓A	2A number of cupcakes (2)	M L1
1.2.2	$120 \times 1000 \checkmark C$ $= 120\,000mg \checkmark A$	$1C \times 1000$ 1A correct answer (2)	M L1
1.2.3	$115 + 100 \checkmark MA$ $= 215g \checkmark A$	1MA adding correct values 1A correct answer (2)	M L1
1.2.4	B ✓✓A	2A correct letter (2)	M L1
1.2.5	$110 \times 3 \checkmark MA$ $330g \checkmark A$	$1MA \times 3$ 1A correct answer (2)	M L1
1.3.1	B ✓✓A	2A correct option (2)	MP L1
1.3.2	1 203 km ✓✓A	2A correct distance (2)	MP L1
1.3.3	Cape Town ✓A and Messina ✓A	2A Cape Town and Messina (2)	MP L1
1.3.4	82:164 ✓RT ✓MA 1:2 ✓A	1RT correct values 1MA correct order 1A simplification (3)	MP L1
		[29]	

QUESTION 2 [29 MARKS / PUNTE]			
Q/V	SOLUTION	EXPLANATION	T&L
2.1.1	Strip chart / Strip(route)Map ✓✓ A <i>Strookkaart</i>	2A correct answer (2)	MP L1
2.1.2	$\begin{aligned} &\checkmark \text{RT} \\ &(317 - 209) + 15 \quad \checkmark \text{MA} \\ &= 123 \text{ km} \checkmark \text{CA} \end{aligned}$ OR $\begin{aligned} &\checkmark \text{RT} \\ &(246 - 138) + 15 \quad \checkmark \text{MA} \\ &123 \text{ km} \checkmark \text{CA} \end{aligned}$	1RT reading 15km 1MA minus correct values 1CA simplification 1RT reading 15km 1MA minus correct values 1CA simplification (3)	MP L2
2.1.3	$\begin{aligned} &455 + 177 \quad \checkmark \text{MA} \\ &= 632 \text{ km} \checkmark \text{CA} \end{aligned}$	1MA adding values 1CA simplication (2)	MP L2
2.1.4	Certain/ Definite ✓✓ A Definitief / (vir)Seker	2A probability in words (2)	P L2
2.1.5 *	$\begin{aligned} \text{Time} &= \frac{\text{distance}}{\text{speed}} \quad \checkmark \text{A} \\ &= \frac{620 \text{ km}}{100 \text{ km/h}} \quad \checkmark \text{SF} \end{aligned}$ <i>Time = 6h12 mins / 6,2 hours</i> ✓CA <i>Rest time = 15 + 15 + 45</i> ✓MA <i>= 1hr15 mins / 1,25 hours</i> ✓CA <i>Total time = 6h12 + 1h15</i> <i>= 7h27min / 7,45 hours</i> ✓MCA <i>Arrival time = 06:00 + 7h27</i> <i>= 13:27</i> ✓CA He is incorrect ✓O OR	 1A changing formula 1SF correct values 1CA answer in hours 1MA adding rest breaks 1CA simplication 1MCA finding total time 1CA simplification arrival time 1O conclusion	MP L4

	OR Total travel time: $\checkmark$MA $13:15 - 06:00 = 7h15$ $\checkmark$CA Time (subtract rest breaks): $7h15 - (15 \text{ min} + 15 \text{ min} + 45 \text{ min})$ $\checkmark$MA $= 6 \text{ hours}$ $\checkmark$CA Calculated time: $Time = \frac{620}{100}$ $\checkmark$A $\checkmark$SF $Time = 6,2 \text{ hours}$ $\checkmark$CA $Time = 6 \text{ hours } 12 \text{ minutes}$ $\therefore$ He is incorrect $\checkmark$O	1MA subtracting times 1CA answer in hours / min 1MA adding rest breaks 1CA simplification 1A changing formula 1SF correct values 1CA simplification arrival time 1O conclusion (8)	
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Q/V	SOLUTION	EXPLANATION	T&L
2.2.1	South East / SE ✓✓A <i>Suid-Oos / SO</i>	2A correct answer (2)	MP L1
2.2.2	Three / 3 ✓✓A <i>Drie / 3</i>	2A correct number (2)	MP L2
2.2.3	It is a multi-storey ✓A building because it has an escalator. ✓O <i>Dit is 'n meerverdiepingsgebou omrede die gebou roltrappe het.</i>	1A multi-story / meerverdiepingsgebou 1O conclusion (2)	MP L4
2.2.4	• At the exit to Mr Price turn left and continue straight. ✓A • At the end of the aisle, between shops 90 and 119 turn left and continue straight. ✓A • At the end of the aisle, as you reach shop 86 towards Pick 'n Pay, turn right and continue straight to the exit. ✓A	1A turn left (W) and continue straight 1A turn left (S) at shop 90/75/119 1A turn right (W) and walk towards the exit (3)	MP L2
2.2.5	41mm: 32,8m ✓MA 41: 32 800 ✓C 1: 800 ✓CA OR 41mm: 32,8m ✓MA 0,00041m: 32,8m ✓C 1: 800 ✓CA	1MA correct format 1C m to mm 1CA simplification 1MA correct format 1C mm to m 1CA simplification (3)	MP L3
		[29]	

QUESTION 3 [32 MARKS / PUNTE]			
Q/V	SOLUTION	EXPLANATION	T&L
3.1.1	✓ MA $230 \text{ cm} \times 0,45$ $= 103,5 \text{ cm} \checkmark \text{ A}$ $= 1,035 \text{ m} \checkmark \text{ C}$ OR $230 \text{ cm} \div 100 = 2,3 \text{ m} \checkmark \text{ C}$ ✓ MA $2,3 \text{ m} \times \frac{45}{100} = 1,035 \text{ m} \checkmark \text{ A}$	1MA $230 \times 0,45$ 1A correct answer 1C answer in metres 1C answer in metres 1MA $2,3 \times 0,45$ 1A correct answer NPR (3)	M L2
3.1.2	Weekday: $20:00 - 17:20 \checkmark \text{ MA}$ $= 2 \text{ hours } 40\text{min}$ $= 2 \text{ hours } 40\text{min} \times 5 \text{ days} \checkmark \text{ MCA}$ $= 13 \text{ hours } 20 \text{ minutes}$ Weekend: $13:00 - 06:00$ $= 7 \text{ hours} \times 2 \text{ days}$ $= 14 \text{ hours} \checkmark \text{ A}$ Total hours: $13 \text{ hours } 20 \text{ minutes} + 14 \text{ hours} \checkmark \text{ MCA}$ $= 27 \text{ hours and } 20 \text{ minutes} \checkmark \text{ CA}$	1 MA subtracting times 1 MCA Multiply with days per week 1A 14 hours in weekend 1MCA adding both times 1 CA Answer (5)	M L2

3.1.3	✓ MA $9,48 \text{ m}^2 \div 0,009 \text{ m}^2$ $= 1\,053,333333 \text{ ml} \checkmark \text{ A}$ $9,48 \text{ m}^2 \div 0,015 \text{ m}^2$ $= 632 \text{ ml} \checkmark \text{ A}$ $1\,053,333333 \text{ ml} + 632 \text{ ml}$ $\checkmark \text{ CA}$ $= 1685,333333 \text{ ml} \div 500 \text{ ml} \checkmark \text{ MCA}$ $= 3,37$ $= 4 \text{ cans} \checkmark \text{ R}$ Cost: $4 \times \text{R}249,89$ $= \text{R}999,56 \checkmark \text{ MCA}$ Zandile is correct ✓ O	1MA $9,48 \div 0,009$ 1A for first coat 1A for second coat 1CA adding 2 coats 1MCA Dividing by 500ml 1R correct rounding 1MCA finding the total cost 1O conclusion	M L4 (8)
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Q/V	SOLUTION	EXPLANATION	T&L
3.2.1	Length = $9 \times 30 \text{ mm}$ ✓ MA $= 270 \text{ mm} / 27 \text{ cm}$ ✓ A Width = 8×30 $= 240 \text{ mm} / 24 \text{ cm}$ ✓ A	1MA number of caps $\times 30$ 1A length 1A width AO (270mm & 240mm) (27 cm & 24cm) (3)	M L2
3.2.2	$3\text{cm} \times 10 = 30\text{mm}$ ✓ C Adding length to new width: ✓ A ✓ MA $270 + 270 + (30 + 240 + 30) + (30 + 240 + 30)$ ✓ MA $= 1\,140 \text{ mm}$ ✓ CA OR $3\text{cm} \times 10 = 30\text{mm}$ ✓ C Adding width to new length ✓ A ✓ MA $240 + 240 + (30 + 270 + 30) + (30 + 270 + 30)$ ✓ MA $= 1\,140 \text{ mm}$ ✓ CA	CA from 3.2.1 1C answer in mm 1A length 1MA calculating new width 1MA adding 4 sides 1CA simplification 1C conversion 1MA calculating new length 1A width 1MA adding 4 sides 1CA simplification (5)	M L2
3.3.1	8×9 ✓ MA $= 72 \text{ Bottle caps}$ ✓ A	1MA Multiply 8 by 9 1A total caps AO (2)	M L1
3.3.2	<u>Amount of ml per glue stick:</u> $20\text{g} \div 0,95\text{g}$ ✓ MA $= 21,05263158\text{ml}$ ✓ A <u>Glue needed for caps:</u> $72 \times 0,7\text{ml}$ ✓ MCA $= 50,4\text{ml}$ ✓ CA <u>Number of glue sticks:</u> $50,4\text{ml} \div 21,05263158\text{ml}$ ✓ MCA $= 2,394$ $= 3 \text{ sticks / stafies}$ ✓ R	CA from 3.3.1 1MA divide 0,95g 1A correct answer 1MCA Multiply by 0,7 1CA simplification 1MCA divided 21,05263158 1R Correct rounding	M L3

	OR <u>Glue needed for caps:</u> $72 \times 0,7\text{ml}$ $= 50,4\text{ml} \checkmark \text{MCA}$ <u>Amount of g per glue stick:</u> $50,4 \text{ ml} \times 0,95\text{g} \checkmark \text{MCA}$ $= 47,88\text{g} \checkmark \text{CA}$ <u>Number of glue sticks:</u> $47,88\text{g} \div 20\text{g} \checkmark \text{MCA}$ $= 2,394 \checkmark \text{CA}$ $= 3 \text{ sticks} \checkmark \text{R}$ OR <u>Amount of ml per glue stick:</u> $20\text{g} \div 0,95 \checkmark \text{MA}$ $= 21,05263158 \text{ ml} \checkmark \text{A}$ <u>Per unit needed for caps:</u> $21,05263158 \text{ ml} \div 0,7 \text{ ml} \checkmark \text{MCA}$ $= 30,0714 \checkmark \text{CA}$ <u>Number of glue sticks:</u> $72 \div 30,0714 \checkmark \text{MCA}$ $= 2,394$ $= 3 \text{ sticks} \checkmark \text{R}$	1MCA Multiply by 0,7 1MCA multiply 0,95g 1CA simplification 1MCA divided 20 1CA simplification 1R Correct rounding 1MA divide 0,95g 1A correct answer 1MCA divide by 0,7ml 1CA simplification 1MCA divide by 30,0714 1R correct rounding (6)	
		[32]	

QUESTION 4 [28 MARKS / PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
4.1.1	✓A ✓A N7 and R315	1A N7 also accept 7 1A R315 (2)	MP L1
4.1.2	Grotto Bay ✓A Jakkalsfontein ✓A	2A Points of interest (2)	MP L1
4.1.3	<u>Distance in centimetres:</u> ✓MA $11,3 \times 372\,000 = 4\,203\,600 \text{ cm}$ ✓A <u>Distance in kilometres:</u> ✓C $4\,203\,600 \div 100 \div 1000 = 42,036 \text{ km}$ $\approx 42 \text{ km}$ ✓R	1MA $11,3 \times 372\,000$ 1A 4 203 600 1C from cm to km 1R nearest km (4)	MP L3
4.1.4	$42 \times 2 = 84 \text{ km round or return trip}$ ✓A <u>Cost of petrol:</u> ✓MA $\frac{84 \text{ km}}{14} = 6 \text{ liters of petrol needed} \times R25,23$ $= R151,38$ <u>Cost per person:</u> ✓MCA $R151,38 \div 3 = R50,46 \text{ per lady}$ ✓CA ✓O Incorrect, they will be R1,38 short in total or R0,46 each OR <u>Cost of petrol (single trip):</u> ✓MA ✓MCA $\frac{42 \text{ km}}{14} = 3 \text{ liters of petrol needed} \times R25,23$ $= R75,69 \times 2$ $= R151,38$ ✓A <u>Cost per person:</u> ✓MA $R151,38 \div 3 = R50,46 \text{ per lady}$ ✓CA ✓O Incorrect, they will be R1,38 short in total or R0,46 each	CA from 4.1.3 1A return trip 1MA divide by 14 1MCA $\times$ tariff of R25,23 1MCA divide by 3 ladies 1CA simplification 1O conclusion 1MA divide by 14 1MCA $\times$ tariff of R25,23 1A total fuel for return trip 1MA divide by 3 ladies 1CA simplification 1O Conclusion (6)	M/F L4

Q/V	SOLUTION	EXPLANATION	T&L
4.2.1	$100 \text{ mm} \div 2$ $= 50 \text{ mm} \checkmark \text{MA}$ $\checkmark \text{C}$ $50 \text{ mm} \div 10$ $= 5 \text{ cm} \checkmark \text{A}$	$1\text{MA} \div 2$ 1C from mm to cm 1A radius in cm AO (3)	M L2
4.2.2	$\checkmark \text{MA}$ $\text{Decrease in height} = 32 \text{ cm} \times \frac{13}{100}$ $= 4,16$ $\text{Height of the vase (2}^{\text{nd}} \text{ row)} = 32 - 4,16$ $= 27,84 \checkmark \text{A}$ $\text{Decrease in height} = 27,84 \text{ cm} \times \frac{13}{100}$ $= 3,6192$ $\text{Height of the vase (3}^{\text{rd}} \text{ Row)} = 27,84 - 3,6192$ $= 24,2208 \checkmark \text{CA}$ <u>Volume of vase in 3rd Row:</u> $= 3,142 \times 5^2 \times 24,2208 \checkmark \text{SF}$ $= 1902,54 \text{ cm}^3 \checkmark \text{CA}$ OR <u>Decrease in height of 2nd and 3rd row</u> $\checkmark \text{MA} \quad \checkmark \text{A}$ $32 \text{ cm} \times 0,87 \times 0,87$ $= 24,2208 \text{ cm} \checkmark \text{CA}$ <u>Volume of vase in 3rd row</u> $= 3,142 \times 5^2 \times 24,2208 \checkmark \text{SF}$ $= 1902,54 \text{ cm}^3 \checkmark \text{CA}$	CA from 4.2.1 – radius 1MA calculating 13% 1A 27,84 1CA height of 3 rd row 1SF Correct values 1CA Simplification MCA from 4.2.1 – radius 1MA calculating 0,87 1A 0,87 twice 1CA height of 3 rd row 1SF Correct values 1CA Simplification (5)	M L3
4.2.3 *	$\checkmark \text{MA} \quad \checkmark \text{A}$ $471,3 \text{ mm} \times 1,5 = 706,95 \text{ mm}$ $\checkmark \text{C}$ $706,95 \div 10 = 70,695 \text{ cm}$ $\approx 71 \text{ cm} \quad \checkmark \text{R}$ OR $\checkmark \text{C}$ $471,3 \text{ mm} \div 10 = 47,13 \text{ cm}$ $\checkmark \text{MA}$ $47,13 \times 1,5 = 70,695 \text{ cm}$ $\approx 71 \text{ cm} \quad \checkmark \text{R}$	1MA calculating 1,5 1C to cm 1R Correct rounding 1C to cm 1MA calculating 1,5 1R Correct rounding (3)	M L2

4.2.4	$\checkmark$SF $= 3,142 \times 75^2 \times 120$ $= 2\,120\,850\text{ mm}^3$ $= 2\,120\,850\text{ mm}^3 \div 10^3$ $= 2\,120,85\text{ cm}^3 / \text{ml} \times \frac{1}{4} \checkmark$MA $\checkmark$CA $= 530,2125\text{ ml} \div 1\,000$ $= 0,5302125\text{ l} \checkmark$C $\checkmark$MCA $1\text{ l} - 0,5302125\text{ l} = 0,46\text{ l} \checkmark$CA OR $\checkmark$SF $= 3,142 \times 7,5^2 \times 12 \checkmark$C $= 2\,120,85\text{ cm}^3$ $= 2\,120,85\text{ ml} \times \frac{1}{4} \checkmark$MA $\checkmark$CA $= 530,2125\text{ ml}$ $\checkmark$MCA $1\,000\text{ ml} - 530,2125\text{ ml} = 469,7875\text{ ml} \checkmark$CA	1SF Correct values 1MA calculating 0,25 / dividing by 4 1C answer in litre 1MCA difference in jug 1CA simplification 1SF correct values 1C answer in ml 1MA calculating 0,25 / divide by 4 1CA simplification 1MCA difference in jug 1CA simplification NPR (6) [31]	M L3
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QUESTION 5 [29 MARKS / PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.1.1	36 m ✓✓A	2A length in metres (2)	MP L1
5.1.2	Length of 2 re-entry areas: $65,62 - 9,84$ ✓MA $= 55,78$ feet ✓A Length of 1 re-entry area $= \frac{55,78}{2}$ ✓MCA $= 27,89$ ✓CA	1MA subtract goal 1A correct Answer 1MCA divide by 2 1CA simplification (4)	MP L2
5.1.3	$\frac{2}{14}$ ✓✓A $= \frac{1}{7}$ ✓CA	1A numerator 1A denominator 1CA simplified fraction AO max of 2 out 3 (3)	P L2
5.2.1	Entire area $= 26 \times 36$ ✓RT $= 936 \text{ m}^2$ Swimming pool area $= 20 \times 30$ ✓SF $= 600 \text{ m}^2$ Difference $= 936 - 600$ ✓MCA $= 336 \text{ m}^2$ Number of pallets $= 336 \div 12,5$ ✓MA $= 26,88$ ≈ 27 pallets ✓R Number of bricks $= 27 \times 600$ ✓MA $= 16\,200$ bricks 5% more bricks $= 16\,200 \times \frac{105}{100}$ ✓MA $= 17\,010$ bricks ✓CA OR ✓RT Whole area: $26 \times 36 = 936 \text{ m}^2$ ✓SF Swimming pool: $20 \times 30 = 600 \text{ m}^2$ Difference: ✓MCA $936 - 600 = 336 \text{ m}^2$ ✓MA $336 \times \frac{105}{100} = 352,8 \text{ m}^2$ ✓MA $352,8 \div 12,5 = 28,224$ $= 29$ pallets ✓R ✓MA ✓CA $29 \times 600 = 17\,400$ bricks / bakstene	1RT values 26 and 36 1SF Correct values 1MCA subtracting two areas 1MA divide 12,5 1R number of pallets 1MA multiply with 600 1MA adding 5% 1CA bricks 1RT values 26 and 36 1SF Correct values 1MCA subtracting two areas 1MA divide 12,5 1R number of pallets 1MA multiply with 600 1MA adding 5% 1CA bricks (8)	MP L4

5.3.1	$80^{\circ}\text{F} = ^{\circ}\text{C} \times 1,8 + 32 \quad \checkmark\text{SF}$ $80 - 32 = ^{\circ}\text{C} \times 1,8$ $48 = ^{\circ}\text{C} \times 1,8 \quad \checkmark\text{MA}$ $= \frac{48}{1,8} \quad \checkmark\text{MA}$ $= 26,67 \quad \checkmark\text{CA}$	1SF Correct values 1MA changing formula 1MA divide by 1,8 1CA Simplification NPR (4)	M L2
5.3.2	$V = 30 \times 20 \times 1,8 \quad \checkmark\text{SF}$ $= 1\,080 \text{ m}^3 \quad \checkmark\text{A}$ 1080×1000 $= 1\,080\,000 \text{ litres} \quad \checkmark\text{C}$ 3g / 1 litre $= 1\,080\,000 \times 3 \quad \checkmark\text{MCA}$ $= 3\,240\,000\text{g}$ $\frac{3240\,000}{1000} \quad \checkmark\text{C}$ $= 3240\text{kg} \quad \checkmark\text{CA}$ $\frac{3240}{20} \quad \checkmark\text{MCA}$ $= 162 \text{ bags} \quad \checkmark\text{CA}$	1SF correct values 1A correct answer 1C to litres 1MCA multiply 1C to kgs 1CA answer in KGs 1MCA divide for bags 1CA number of bags (8) [29]	M L3
TOTAL / TOTAAL: 150			

	Notes to the memo		
4.2.3 Afr scripts only	$\checkmark \text{MA}$ $2\,471,3\text{mm} \times 1,5 = 3\,706,95\text{ mm}$ $\checkmark \text{C}$ $3\,706,95 \div 10 = 370,695\text{cm}$ $\approx 371\text{ cm} \quad \checkmark \text{R}$	1MA calculating 1,5 1C to cm 1R Correct rounding	

