



NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

MATHEMATICAL LITERACY P2

MARKS: 150

TIME: 3 hours

This question paper consists of 11 pages and a SPECIAL
ANSWER BOOK of 15 pages.

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

QUESTION 1

- 1.1 Nathan booked a flight to Johannesburg with an airline. He downloaded a seating plan of the airplane to check the seat that he booked for his flight. The seating plan of the airplane is shown in ANNEXURE A in the ANSWER BOOK.

Use ANNEXURE A to answer the questions below.

- 1.1.1 Define the term '*seating plan*'. (2)
- 1.1.2 Identify the row and the seat number that Nathan booked for his flight. (2)
- 1.1.3 If the crossed-out seats are occupied, determine the number of available seats in row **B**. (2)
- 1.1.4 Determine the number of exits on this seating plan. (2)
- 1.1.5 What is the general direction of seat A18 from seat F9? (2)
- 1.1.6 Determine the fraction of seats that are located at the exits. (2)

- 1.2 The body-mass index (BMI) of a person can be monitored using a bathroom scale. Thandeka bought a bathroom scale with a diameter of 45 cm.



[Adapted from <https://www.amazon.in/>]

Use the information above to answer the question that follow.

- 1.2.1 Define the term '*diameter*' within the context above. (2)
- 1.2.2 Identify the maximum body weight the scale can hold. (2)
- 1.2.3 Thandeka measured her height and the reading is 1,65 metres. Determine her height in millimetres. (2)

1.2.4 Choose the CORRECT letter of the unit that is used to measure BMI.

- A $(\text{kg/m})^2$
 - B kg^2/m
 - C kg/m^2
- (2)

1.2.5 Express as a ratio, the body weight measurement on the scale to the maximum weight the scale can hold.

(2)

1.3 The images below represent different measuring instruments. Study the images below and answer the questions that follow.



[Source: www.googleimages.com]

Choose a image above that will match a description below. Write only the letter (W–Z) next to the question numbers (1.3.1 to 1.3.3), for example 1.3.4 A.

- 1.3.1 An instrument used to measure the length of a bathroom. (2)
- 1.3.2 An instrument used to measure a piece of cloth. (2)
- 1.3.3 An instrument used to measure the speed of a car. (2)

[28]

QUESTION 2

- 2.1 James lives in Humansdorp and is traveling to Mossel Bay on the N2. He uses the map in ANNEXURE B in the ANSWER BOOK to plan his local trips. Study the map and answer the questions that follow.

2.1.1 Identify the type of map used by James in ANNEXURE B. (2)

2.1.2 List the first TWO towns that he will pass on his way to Mossel Bay. (2)

2.1.3 Except the N2, identify ONE other national road on this map. (2)

2.1.4 Determine the distance between Humansdorp and Mossel Bay. (3)

2.1.5 James stopped in Knysna, 133 km away from his destination. Determine the average speed (in km/h) at which he would travel if it were to take him one and a half hours to reach Mossel Bay. Round off your answer to ONE decimal place.

You may use the formula: $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$ (4)

2.1.6 James left Knysna at 12:47. Determine his arrival time in Mossel Bay. (3)

2.1.7 Determine the probability, as a decimal fraction, to find a National Park (NP) directly next to the N2. (3)

2.1.8 List TWO disadvantages of using the type of map in ANNEXURE B. (4)

- 2.2 Enroute to Mossel Bay, James decided to visit his uncle in Oudtshoorn for two days. According to his trip logbook, the total return distance for this trip, including the detour to Oudtshoorn, was 748 km. James used 45 litres of petrol for his trip. He did not use the car to travel in and around Mossel Bay.

The vehicle manufacturer claims that this specific model has an urban/highway combined fuel consumption of 7,2 litres per 100 km.

Use the information above to answer the questions that follow.

2.2.1 Show how the total return distance for the trip was calculated. (2)

2.2.2 Verify, with calculations, whether the manufacturer's claim about the fuel consumption (per 100 km) is correct for James' return trip. (4)

[29]

QUESTION 3

- 3.1 A small business builds and sells dog kennels. The options they consider for the dog kennels are shown in the diagram below.

WOODEN DOG KENNEL	WATERPROOF PLASTIC DOG KENNEL
	
DIMENSIONS OF THE DOG KENNEL: Length: 1,3 m Width: 96,5 cm Wall height: 1,04 m Roof sloping height: 0,5 m Weight: 29,78 kg	DIMENSIONS OF THE DOG KENNEL: Total area of the plastic used: 66 930 cm ² Cost of waterproofing paint: R198,48/m ² Weight: 23 kg

[Adapted from <https://heartdeco.co.za/products>]

Use the information above to answer the questions that follow.

- 3.1.1 Convert the width of the wooden dog kennel to metres. (2)

- 3.1.2 The manufacturer of the waterproofing plastic dog kennel stated that the kennel can only take a dog's weight that is 33% less than the weight of the kennel. Hence, determine the maximum weight of the dog. (3)

- 3.1.3 The wooden dog kennel will be covered with two coats of varnish after manufacturing.

Calculate:

- (a) The area of the TWO rectangular sides of the dog kennel.

You may use the following formula:

$$\text{Area of a rectangle} = \text{width} \times \text{wall height} \quad (3)$$

(b) The number of tins of varnish needed to varnish ONE dog kennel if the:

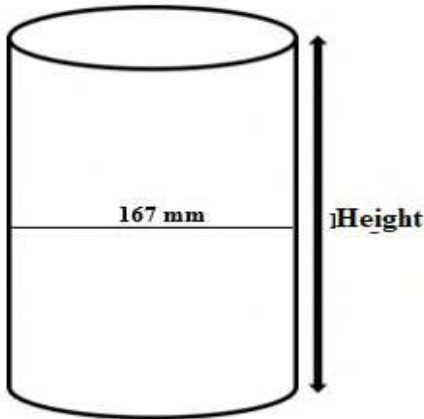
- * Area of the opening of the door is $0,4 \text{ m}^2$
- * Area of the front and back panels together, excluding the door, is $4,004 \text{ m}^2$
- * Roof AND the floor of the kennel will not be varnished
- * Spread rate of the varnish is 3 m^2 per 2 litres
- * Varnish is sold in 5 litre tins

You may use the following formula:

Total surface area = Area of the triangular front and back (excluding the door opening) + area of the two rectangular sides.

(7)

3.2 The varnish is sold in 5-litre tins that is filled to 95% its maximum capacity. The diagrams and the dimensions of the varnish tin are given below.

PICTURE OF THE VARNISH TIN	DIAGRAM OF THE VARISH TIN WITH DIMENSIONS
 Capacity of the tin = 5 litres	

[Source: <https://colortone.co.za/products>]

Use the information above to answer the questions that follow.

3.2.1 Define the term 'capacity' within the context above (2)

3.2.2 Determine the radius of the varnish tin in centimetres. (3)

3.2.3 Calculate the height of the **varnish in the tin**, if $1 \text{ litre} = 1\,000 \text{ cm}^3$.

You may use the following formula: **Volume = $3,142 \times \text{radius}^2 \times \text{height}$** (6)

3.2.4 Provide ONE reason why the tin is not filled to its maximum capacity. (2)

[28]

QUESTION 4

- 4.1 Carol bought a house in Stutterheim. The floor plan of the house is shown in ANNEXURE C in the ANSWER BOOK.

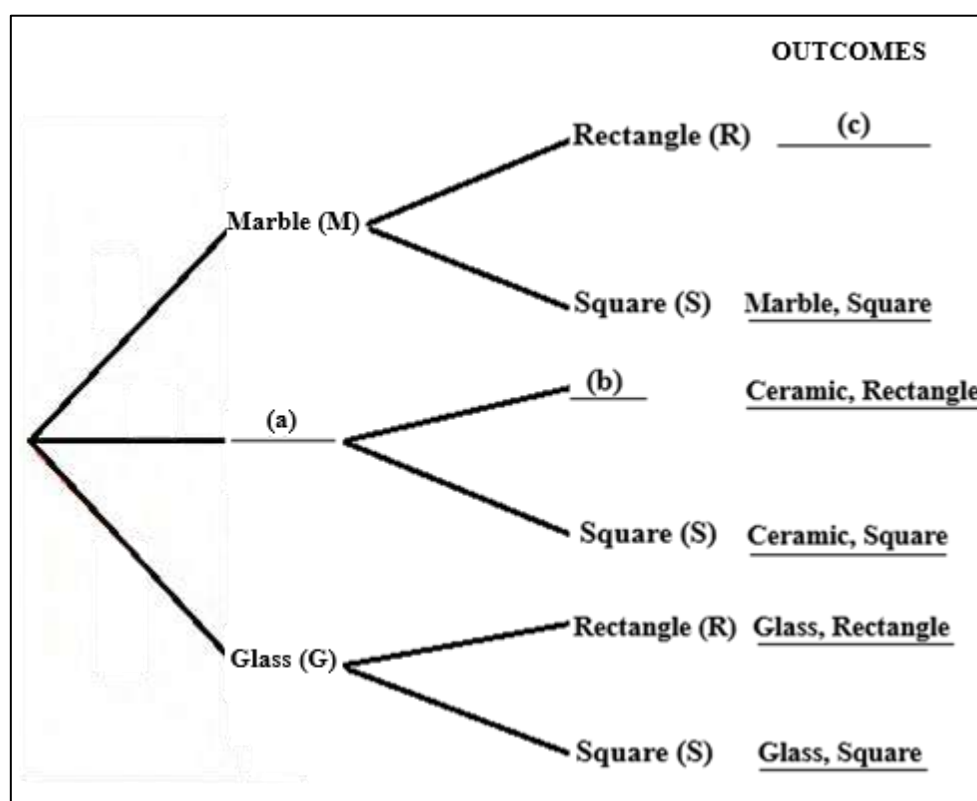
Use the floor plan in ANNEXURE C to answer the questions below.

- 4.1.1 Distinguish between a 'floor plan' and a 'layout plan'. (4)
- 4.1.2 Determine the number of doors opening to the right on the floor plan. (2)
- 4.1.3 Determine the probability that a bedroom would get sun mostly in the morning. (2)
- 4.1.4 Calculate the total length of the house in metres. (2)

NOTE: 1 inch = 0,0254 m (4)

- 4.2 Carol wants to tile the dining room. She must choose from three different types of tiles: marble (M), ceramic (C), and glass (G) tiles. Each tile comes in either a rectangular (R) or a square shape (S).

Use the above information to complete the tree diagram below which illustrates the probability of using each type and shape of tile. Write only the letter and the correct answer.



(3)

- 4.3 Carol decided to tile the dining room using the ceramic tiles. The dimensions of the tiles are given below.

TABLE 1: DIMENSIONS OF THE TILES

TILE TYPE	LENGTH	WIDTH
Square	0,7 m	0,7 m
Rectangular	850 mm	650 mm

[Adapted from <https://www.rubi.com/en/blog/rectangular-tiles/>]

Use TABLE 1 above to answer the questions that follow.

- 4.3.1 Carol claims that she will need a minimum of twenty rectangular tiles to tile the living room only.

Verify, with the necessary calculations whether her statement is VALID. (9)

- 4.3.2 Carol decides to buy 50 extra tiles so that she can tile the bedrooms too. Determine the total number of boxes of tiles that Carol will buy if one box contains 4 tiles. (4)

- 4.3.3 It takes the tiler 40 minutes to lay 10 tiles and 1 hour 22 minutes to grout the entire living room. Determine the time the tiler will finish the tiling job if he starts tiling at 09:20 in the morning. (5)

[33]

QUESTION 5

- 5.1 Nthabiseng planned to go on tour to France. The tour will include visiting FIVE cities. The cities to be visited are Bordeaux, Nantes, Angers, Orleans, and Dijon.

The map below shows the routes she will be taking from France.



[Adapted from <https://www.shutterstock.com/>]

Study the map above and answer the questions that follow.

- 5.1.1 Write down the type of scale used in this map. (2)
- 5.1.2 Use the scale of the map to determine what the map distance should be between Nantes and Angers if the actual distance between the two cities is 56,86 miles. Give your answer rounded off to the nearest centimetre.

NOTE: 1 km = 0,621371 miles (4)

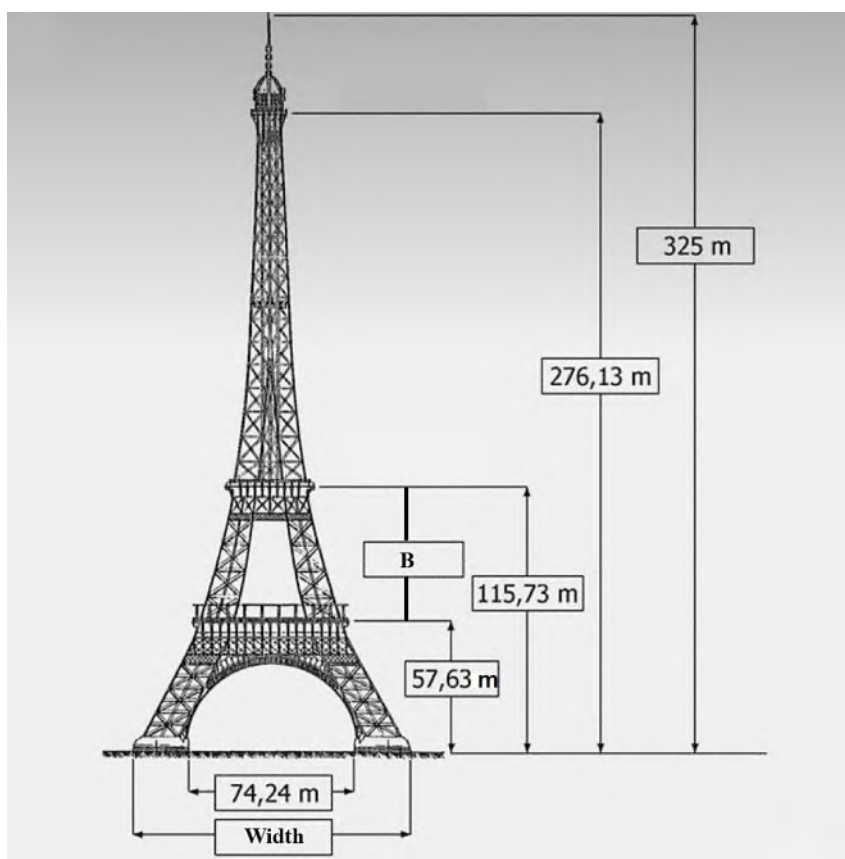
- 5.1.3 When travelling by train, the duration of the ride from Angers to Orleans takes 2 hours 6 minutes. The travel agent claims that the train ride from Orleans to Dijon should take 2 hours 46 minutes if the average speed from Orleans to Dijon is the same.

Verify, using measurements and calculations, if her claim is CORRECT. (7)

- 5.1.4 Nthabiseng pays a tenth more for the tour to include a trip to the Eiffel tower. The cost of the tour excluding this trip is €157.

Verify, whether the R2 500 she has budgeted for the Eiffel tower tour, will be enough. Note the exchange rate; €1 : R18,20 (4)

- 5.2 While Nthabiseng was touring France, she decided to pay a visit to the Eiffel Tower in Paris. The diagram with dimensions of the tower is shown below.



[Adapted from <https://parisromance.com/paris/landmarks/the-eiffel-tower/>]

Study the information above and answer the questions that follow.

- 5.2.1 Determine what fraction of the height of the entire tower is represented by **B**. Write your answer in decimal form. (3)
- 5.2.2 The length of the outer width of the Eiffel Tower is 59% more than the length of the inner width. Hence, determine the length of the outer width in metres. (3)
- 5.2.3 The Eiffel Tower was inaugurated in March 1889. Determine how many months the Eiffel Tower is in existence in September 2026. (4)
- 5.2.4 With the construction of the Eiffel tower, the ratio of number of steel poles used to its height is:

18 038 poles : height in metres

Use this ratio to determine the average mass per height in metres if one pole weighs 450 kg. Write your answer in ton per metre. (5)

[32]

TOTAL: 150



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MATHEMATICAL LITERACY P2 ANSWER BOOK

MARKS: 150

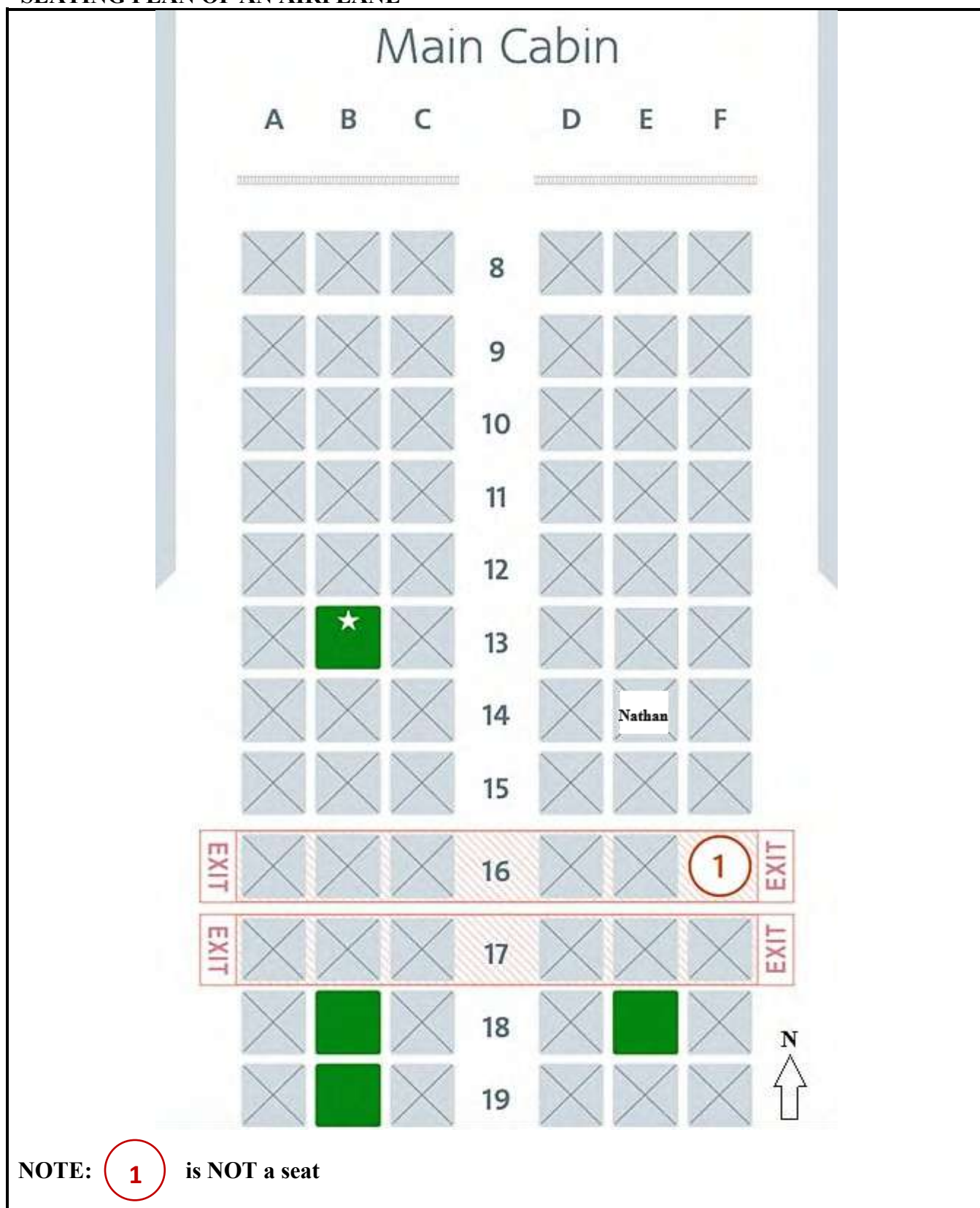
Question	Mark			M Code	School Mod			DH Code	District Mod			DM Code	Province Mod			PM Code
1																
2																
3																
4																
5																
Total																

This answer book consists of 15 pages.

QUESTION 1

1.1 ANNEXURE A

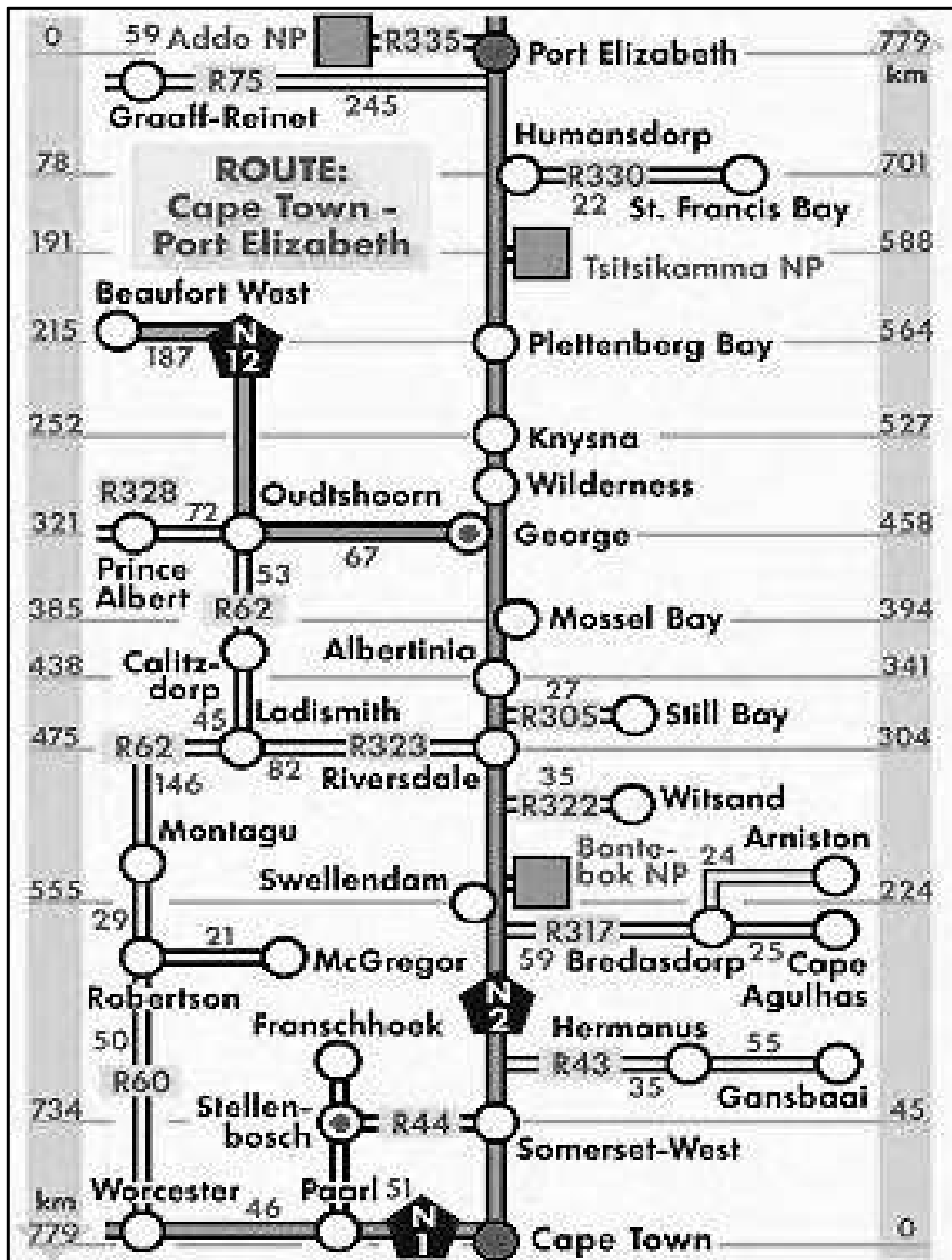
SEATING PLAN OF AN AIRPLANE

[Adapted from: <https://thepointsguy.com/airline>]

	Solution	Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)
1.1.6		(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)
		[28]

QUESTION 2

2.1 ANNEXURE B



[Source: <https://wcedportal.co.za/eresource/>]

	Solution	Marks
2.1.1		(2)
2.1.2		(2)
2.1.3		(2)
2.1.4		(3)
2.1.5		(4)
2.1.6		(3)
2.1.7		(3)
2.1.8		(4)

2.2.1		(2)
2.2.2		(4)
		[29]

QUESTION 3

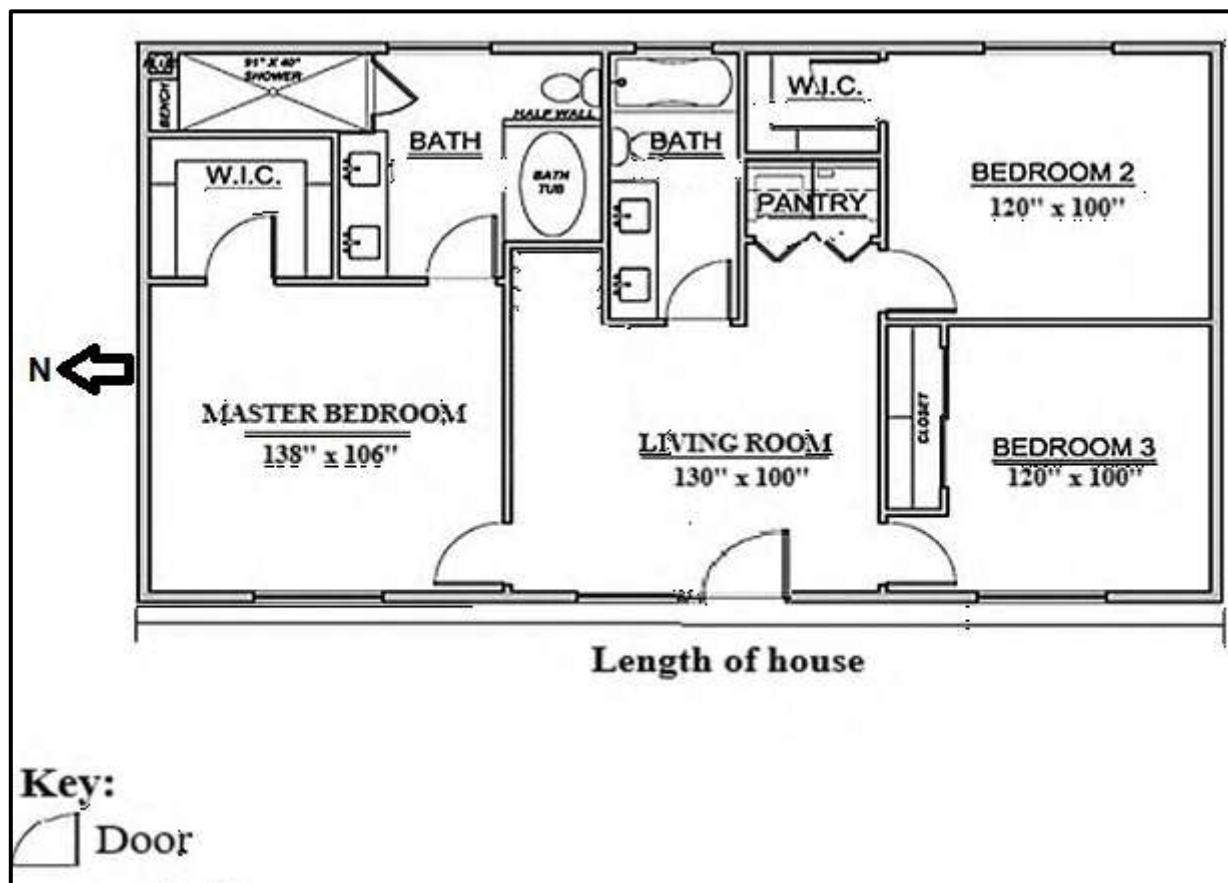
	Solution	Marks
3.1.1		(2)
3.1.2		(3)
3.1.3(a)		(3)
3.1.3(b)		(7)
3.2.1		(2)

3.2.2		(3)
3.2.3		(6)
3.2.4		(2)
		[28]

QUESTION 4

4.1 ANNEXURE C

FLOOR PLAN OF CAROL'S HOUSE



[Adapted from: <https://www.floorplans.com/>]

	Solution	Marks
4.1.1		(4)
4.1.2		(2)
4.1.3		(2)
4.1.4		(4)
4.2.		(3)
(a)		
(b)		
(c)		(9)
4.3.1		

4.3.2		
		(4)
4.3.3		
		(5)
		[33]

QUESTION 5

	Solution	Marks
5.1.1		(2)
5.1.2		(4)
5.1.3		(7)
5.1.4		(4)

5.2.1		(3)
5.2.2		(3)
5.2.3		(4)
5.2.4		(5)
		[32]
	TOTAL:	150

[illegible]

[illegible]



MATHEMATICAL LITERACY PAPER 2

PRELIMINATION EXAMINATION: MARKING NOTES

QUESTION	SOLUTION
1.1.6	Accept $\frac{3}{71}$ ✓A ✓A
1.3.1	Accept X
2.1.4	Alternate response: $\frac{385}{100} \times \frac{78}{100}$ ✓RT ✓RT $= 385 - 78$ $= 307$ ✓CA
2.1.7	Accept unrounded value
2.2.2	Alternate response: $7,2 \ell : 100 \text{ km}$ $? : 748 \text{ km}$ ✓MA $\frac{748}{100} \times \frac{7,2}{1} = 53,856 \ell$ ✓CA ✓MA $\therefore$ No/ incorrect ✓O Follow the steps of the learner
3.1.3b	Accept: ✓SF Surface area = $(4,004 + 2,0072)$ $= 6,0112 \text{ m}^2 \times 2$ ✓MCA $= 12,0224 \text{ m}^2$ ✓CA No. of liters = $\frac{12,0224}{3} \times 2$ ✓MCA $= 8,01493 \ell$ ✓CA No. of tins = $\frac{8,014933}{5}$ $= 1,603 \text{ tins}$ ✓CA $\approx 2 \text{ tins}$ ✓R
4.1.2	6 or 7 doors ✓✓A
4.1.3	$\frac{1}{3}$ ✓A ✓A
4.1.4	*If learners use: • An incorrect value for the length (-1) • cm and convert to m (-1 for incorrect unit used) • If use width instead of length (-1)

4.3.1	CHECK UNIT USED IN 4.1.4 Alternate response:.. Accept: $\frac{\text{Area of living room}}{\text{Area of Tile}} = \text{Number of tiles}$ Area Living Room: 130×100 ✓C $= (130 \times 0,0254) \times (100 \times 0,0254)$ $= 3,302 \times 2,54 \quad \checkmark \text{MCA}$ $= 8,387\text{m}^2 \quad \checkmark \text{CA}$ Tile: $\frac{850}{1000} = 0,85 \text{ m}$ } ✓C $\frac{650}{1000} = 0,65 \text{ m}$ Area of tile : 0,85 x 0,65m = 0,5525m² ✓CA ✓MCA Number of tiles = $\frac{8,387}{0,5525} = 15,2 \text{ tiles}$ ✓CA thus 16 tiles ✓R STATEMENT INVALID ✓O Also note: Tile: $\frac{850}{1000} = 0,85 \text{ m}$ } ✓C $\frac{650}{1000} = 0,65 \text{ m}$ Area of tile : 0,85 x 0,65m = 0,5525m² ✓CA ✓MCA ✓RT ✓CA FOR 20 TILES: 0,5525 x 20 tiles = 11,05m² Area Living Room: 130×100 ✓C $= (130 \times 0,0254) \times (100 \times 0,0254)$ $= 3,302 \times 2,54 \quad \checkmark \text{MCA}$ $= 8,387\text{m}^2 \quad \checkmark \text{CA}$ Thus incorrect as 20 tiles more that required ✓O However: Can't accept reason if only 20 tiles done and nothing else Early rounding(-1) max 8 If use square tile correctly (-1) max 8 Accept If a learner says 20 is good because of breakage,.
4.3.2	If learner used 50 tiles only: 50 ✓CA ✓R $\frac{50}{4} = 12,5 \text{ thus 13 boxes}$ ✓CA

4.3.3	Alternate responses: If learner used 66 tiles: <i>Downloaded from Stanmorephysics.com</i> ✓C $\frac{40 \times 66}{10} = 264 \text{ min} \div 60 = 4,4 \text{ hrs} \quad \checkmark \text{CA}$ ✓MCA $9:20 + 1\text{h}22 + 4\text{hrs } 24\text{min} = 15:08 \quad \checkmark \text{CA}$ IF USE 40 MIN ONLY: 1CA mark
5.1.3	Alternate responses: 2cm: $\frac{2 \times 4575000}{100\,000} = 91,5\text{km}$ Time 2hrs 6min thus 2,1hrs Speed = $\frac{91,5}{2,1\text{hrs}} = 43,57\text{km/h}$ 2,8cm: $\frac{2,8 \times 4575000}{100\,000} = 128,1\text{km}$ Time = 2hrs 46min = 2,76hrs Speed = $\frac{128,1}{2,76\text{hrs}} = 46,30\text{km/h}$ OR Time = $\frac{128,1}{43,57} = 2.94 \text{ hrs}$ = 2h56min
5.1.4	Alternate responses: Budgeted amount: $\frac{2500}{18,20} = \text{€ } 137,36$ Thus, $\text{€}137,36 \times \frac{110}{100} = \text{€}151,10$ Thus not enough Even learners comparing € 137 and €157 can conclude it is not enough Also: $\text{€}157 \times \frac{1}{10} = \text{€}15,7$ Budgeted amount: $\frac{2500}{18,20} = \text{€ } 137,36$ It is enough
5.2.3	Minus 1 when using 5 months correctly



NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

MATHEMATICAL LITERACY P2 MARKING GUIDELINE

MARKS: 150

Symbol	Explanation
MA	Method with accuracy
MCA	Method with consistent accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT	Reading from a table/graph/diagram
SF	Correct substitution in a formula
O	Opinion/Explanation/Reasoning
P	Penalty, e.g. for no units, incorrect rounding off etc.
NPR	No penalty for correct rounding
NPU	No penalty for omitting unit, but wrong unit is penalised
AO	Answer only

This marking guideline consists of 12 pages.

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 penalize for every extra incorrect item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake one mark is deducted.
- A conclusion mark can only be given if $\frac{1}{3}$ of the total marks for the sub-question have been awarded.
- No penalty for rounding (NPR) if the first decimal is correct.

KEY TO TOPIC SYMBOL:

F = Finance; M = Measurement; MP = Maps, plans and other representations; P = Probability

QUESTION 1 [28 MARKS]

ANSWER ONLY FULL MARKS

Ques.	Solution	Explanation	Level
1.1.1	A seating plan is a 2D scale diagram that shows the arrangement of seats within a specific venue. ✓✓A	2A correct definition. (2)	MP L1
1.1.2	Row E, Seat 14 ✓A ✓A	1A correct row 1A correct seat (2)	MP L1
1.1.3	3 seats ✓✓RT	2RT number of seats (2)	MP L1
1.1.4	Four / 4 ✓✓RT	2RT number of exits (2)	MP L1
1.1.5	South-west / SW ✓✓A	2A correct direction (2)	MP L1
1.1.6	$\frac{11}{71}$ ✓A ✓A	1A numerator 1A denominator (2)	MP L1
1.2.1	The diameter is a straight line passing from side to side through the centre of a circle. ✓✓A	2A correct definition (2)	M L1
1.2.2	150 kg ✓✓RT	2RT maximum weight (2)	M L1
1.2.3	Height = 1,65 x 1 000 ✓ C = 1 650 mm ✓A	1C multiply by 1 000 1A height in millimeters (2)	M L1
1.2.4	C ✓✓A	2A correct answer (2)	M L1
1.2.5	62,4 : 150 ✓✓A Award ONLY 1 mark if ratio is switched	2A correct ratio (2)	M L1
1.3.1	Y ✓✓A	2A correct answer (2)	M L1
1.3.2	X ✓✓A	2A correct answer (2)	M L1
1.3.3	Z ✓✓A	2A correct answer (2)	M L1
[28]			

QUESTION 2 [29 MARKS]			
Ques.	Solution	Explanation	Level
2.1.1	Strip map / Strip chart ✓✓A	2A correct answer (2)	MP L1
2.1.2	Plettenberg Bay ✓RT Knysna ✓RT	1RT first town 1RT second town (Accept any order) (2)	MP L1
2.1.3	N1 OR N12 ✓✓A	2A correct road (2)	MP L1
2.1.4	Distance = $\frac{701 - 394}{1,5}$ ✓RT = 307 km ✓CA	2RT correct values 1CA total distance (3)	MP L2
2.1.5	Time = $\frac{\text{Distance}}{\text{Speed}}$ $1,5 = \frac{133 \text{ km}}{\text{Speed}}$ ✓SF $\therefore \text{Speed} = \frac{133 \text{ km}}{1,5}$ ✓MA = 88,666...km/h ✓CA ≈ 88,7 km/h ✓R	1SF substitution 1MA changing subject of the formula 1CA speed 1R rounding (4)	MP L2
2.1.6	Arrival time = 12:47 + 1:30 ✓MA = 14:17 ✓CA	1MA adding time 1RT correct traveling time 1CA answer (3)	MP L2
2.1.7	Probability = $\frac{2}{3}$ ✓A = 0,67 ✓R	1A numerator 1A denominator 1R rounding (3)	P L2
2.1.8	It has no scale, thus cannot make accurate measurements from it. ✓✓O OR You cannot use it to navigate spontaneous side trips, exploring nearby towns, or visiting attractions off the main road. ✓✓O OR It prevents accurate traveling timing because steep areas appear flat. ✓✓O (Accept any relevant answer)	2O first reason 2O second reason (4)	MP L4

2.2.1	Total return distance = $(307 + 67) \times 2$ ✓ MA = 748 km OR Total return distance = $(307 \times 2) + (67 \times 2)$ ✓ MA = 748 km	CA from 2.1.4 1MA adding correct distances 1MA multiply by 2 1MA return distance between Humansdorp and Mossel Bay 1MA return distance to Oudtshoorn (2)	MP L1
2.2.2	Fuel consumption = $\frac{45}{748} \times 100$ ✓ MA = 6,016042... ✓ CA ≈ 6 ℓ/ 100 km They are incorrect ✓ O OR 7,2 ℓ : 100 km ? 748 km $\frac{748}{100} \times \frac{7,2}{1} = 53,856$ ℓ ∴ No/ incorrect ✓	1MA divide correct values 1MA multiply by 100 1CA consumption 1O Opinion (4)	MP L4
		[29]	

QUESTION 3 [28 MARKS]			
Ques.	Solution	Explanation	Level
3.1.1	$\text{Width} = \frac{96,5}{100} \checkmark C$ $= 0,965 \text{ m } \checkmark CA$	1C diving by 100 1CA answer in m NPR (2)	M L1
3.1.2	$\checkmark RT$ $\text{Weight} = 23 \text{ kg} - \left(\frac{33}{100} \times 23\right) \checkmark MA$ $= 15,41 \text{ kg } \checkmark CA$ OR $\text{Weight} = 23 \text{ kg} \times \frac{67}{100} \checkmark MA$ $= 15,41 \text{ kg } \checkmark CA$	1RT using 23 kg 1MA subtracting 33% 1CA maximum weight OR 1RT using 23 kg 1MA calculating 67% 1CA maximum weight (3)	M L2
3.1.3 (a)	$\text{Area} = \text{width} \times \text{wall height}$ $= 0,965 \text{ m} \times 1,04 \text{ m } \checkmark SF$ $= 1,0036 \text{ m}^2 \times 2 \checkmark MA$ $= 2,0072 \text{ m}^2 \checkmark CA$	CA from 3.1.1 1SF substitution 1MA multiply by 2 1CA answer (3)	M L2
3.1.3(b)	$\checkmark SF$ $\text{Surface area} = (4,004 + 2,0072) - 0,4 \checkmark MA$ $= 5,6112 \text{ m}^2 \times 2 \checkmark MCA$ $= 11,2224 \text{ m}^2$ $\text{No. of liters} = \frac{11,2224}{3} \times 2 \checkmark MCA$ $= 7,4816 \text{ l } \checkmark CA$ $\text{No. of tins} = \frac{7,4816}{5}$ $= 1,49632 \text{ tins } \checkmark CA$ $\approx 2 \text{ tins } \checkmark R$ OR $\text{Surface area} = 11,2224 \text{ m}^2 \checkmark SF \checkmark MA \checkmark MCA$ $\text{No. of litres} = 3 \text{ m}^2 : 2 \text{ l}$ $= 11,2224 \text{ m}^2 : ? \checkmark MCA$ $= \frac{11,2224}{3} \times 2 = 74816 \text{ l } \checkmark CA$ $\text{No. of tins} = \frac{7,4816}{5} = 1,49632$ $\approx 2 \text{ tins } \checkmark R$	CA from 3.1.3a 1SF substitution 1MA subtracting 0,4 m 1MCA multiply by 2 1MCA using spread rate 1CA answer 1CA no of tins 1R rounding (7)	M L3
3.2.1	Capacity refers to the maximum amount of varnish the tin can hold. $\checkmark \checkmark A$ OR Capacity refers to the maximum amount of liquid a container can hold. $\checkmark \checkmark A$	2A correct definition (2)	M L1

3.2.2	$\text{Radius} = \frac{167}{2} \checkmark \text{MA}$ $= \frac{83,5 \text{ mm}}{10} \checkmark \text{C}$ $= 8,35 \text{ cm} \checkmark \text{CA}$	1MA diameter divide 2 1C convert to cm 1CA answer in cm (3)	M L2
3.2.3	$\text{Volume} = 3,142 \times \text{radius}^2 \times \text{height} \checkmark \text{C}$ $5\,000 = 3,142 \times 8,35^2 \times \text{height} \checkmark \text{SF}$ $\text{Height} = \frac{5\,000}{(3,142 \times 8,35^2)} \checkmark \text{MA}$ $= 22,82395344 \text{ cm} \checkmark \text{CA}$ $\therefore \text{Height of varnish in tin} = \frac{95}{100} \times 22,82395344 \text{ cm} \checkmark \text{MCA}$ $= 21,68 \text{ cm} \checkmark \text{CA}$	CA from 3.2.1 1C converting 5ℓ to cm ³ 1SF substitution 1MCA changing subject of formula 1CA height of tin 1MCA calculating 95% 1CA varnish height (6)	M L3
3.2.4	Room for Tinting and Mixing $\checkmark \checkmark \text{O}$ OR To allow expansion space when exposed to high temperatures during transport or storage. $\checkmark \checkmark \text{O}$ OR The gap prevents paint from welling up into the rim groove, which prevents a proper, airtight seal. $\checkmark \checkmark \text{O}$ OR It provides safety clearance so the user can open and carry the tin without spilling. $\checkmark \checkmark \text{O}$ (Accept any relevant answer)	2O correct reason (2)	M L4
			[28]

QUESTION 4 [33 MARKS]			
Ques.	Solution	Explanation	Level
4.1.1	A floor plan shows the design and dimensions of the inside of a building, from a top view. ✓✓A A layout plan is a top-down drawing that shows how a large area or space is arranged. ✓✓A	2A first explanation 2A second explanation (4)	MP L1
4.1.2	6 doors ✓✓A	2A correct answer (2)	MP L2
4.1.3	$\frac{2}{3}$ ✓A $\frac{3}{3}$ ✓A	1A numerator 1A denominator (2)	MP L2
4.1.4	Length of house = 138 + 130 + 120 ✓MA = 388 inches ✓CA = 388 × 0,0254 ✓C = 9,8552 m ✓CA	1MA adding correct values 1CA answer 1C multiply with 0,0254 1CA length in m (4)	M L2
4.2.	a) ceramic (C) ✓A b) rectangle (R) ✓A c) marble, rectangle (MR) ✓A	1A correct answer 1A correct answer 1A correct answer (3)	P L2
4.3.1	Dimensions: Living room: $130 \times 0,0254 = 3,302$ m $100 \times 0,0254 = 2,54$ m } ✓C Tile: $\frac{850}{1000} = 0,85$ m } ✓RT $\frac{650}{1000} = 0,65$ m } ✓C No of tiles: $= \frac{3,302}{0,85} \times \frac{2,54}{0,65}$ ✓SF ✓MCA $= 3,885 \times 3,908$ ✓S $= 4 \times 4$ ✓R $= 16$ tiles ✓CA $\therefore$ The statement is INVALID ✓O	1C both dimensions in m 1RT correct tile dimensions 1C both dimensions in m 1SF substitution 1MCA multiplying correct values 1S multiply correct values 1R rounding up to 4 tiles 1CA no of tiles 1O opinion (9)	M L4

4.3.2	No. of tiles = $16 + 50 \checkmark$MA = 66 No. of boxes = $\frac{66}{4} \checkmark$MCA = 16,5 $\checkmark$CA ≈ 17 boxes $\checkmark$R	CA from 4.3.1 1MA adding 1 tile 1MCA divide by 4 1CA no of boxes 1R rounding (4)	M L2
4.3.3	Time taken to tile the living room = $\frac{40}{10} \times 16$ tiles $\checkmark$MA = 64 minutes $\checkmark$CA = 1 h 04 min $\checkmark$C Finishing time = 09:20 + 1h 4 min + 1h 22 min $\checkmark$MCA = 11:46 $\checkmark$CA OR Time taken: 40 min : 10 tiles time : 16 tiles $\frac{16}{10} \checkmark$MA $\times 40 = 64$ minutes $\checkmark$CA $\frac{64}{60} = 1$ hr 04 min $\checkmark$C Finishing time = 09:20 + 1hr 4 min + 1h:22 min $\checkmark$MCA = 11:46 $\checkmark$CA	CA from 4.3.1 1MA multiply and divide correct values 1CA time in minutes 1C time in hours and min 1MCA adding time 1CA finishing time (5)	M L3
			[33]

QUESTION 5 [32 MARKS]			
Ques.	Solution	Explanation	Level
5.1.1	Numerical scale / Number scale / Ratio scale ✓✓A	2A correct answer (2)	MP L1
5.1.2	Actual distance = $\frac{56,86}{0,621371}$ ✓C = 91,50732815 km Map distance = $\frac{91,50732815}{4\,575\,000}$ ✓MA = 0,0000200016 km ✓CA = 2,00016...cm ≈ 2 cm ✓C OR Map : Real 1 : 45 77000 ? : 56,86 miles ∴ $\frac{56,86}{45\,77\,000} = 1,242298 \times 10^{-5}$ 1 KM : 0,621371 ? KM : $1,242298 \times 10^{-5}$ ∴ $\frac{1,242298 \times 10^{-5}}{0,621371} = 1,999286 \times 10^{-5}$ ✓ $1,999286 \times 10^{-5} \times 100\,000$ ✓ 1,999 cm ∴ 2 cm ✓	1C divide by 0,621371 1MA divide by scale 1CA map distance 1C convert to cm (4)	MP L3
5.1.3	Duration in minutes: 2 h 6 min = $(2 \times 60) + 6$ = 126 minutes ✓MA Measured distance (Angers to Orleans) = 2 cm ✓A Measured distance (Orleans to Dijon) = 2,8 cm ✓A ∴ 2 cm = 126 minutes 2,8 cm = ?... minutes Duration in minutes = $\frac{2,8}{2} \times 126$ ✓MCA = 176,4 minutes ÷ 60 ✓C = 2,94 hours = 2 hours 56 minutes ✓CA ∴ Incorrect ✓O OR 2h 6 min: 2 cm ✓A 2h 46; Thus: 126 min: 2 cm ✓C ✓MCA 226 min: Map distance to Dijon = $\frac{228}{126} \times 2$ ✓MCA = 1,79 cm ✓CA Distance to Dijon: 2,8 cm ✓A ∴ Incorrect ✓O	1MA duration in minutes 1A distance between Angers and Orleans 1A distance between Orleans and Dijon 1MCA multiply correct fraction with 126 min 1C convert time 1CA time in hours and min 1O opinion Accept 2,7–2,9cm 1A Measurement to Orleans 1MCA set up ratio 1C Conversion to minutes 1MCA use of ratio 1CA Answer 1A distance to Dijon 1O opinion	MP L4

	OR Measure A to O = 2 cm ✓A O to D = 2,8 cm ✓A ∴ 2h 6 min = 126 min ✓MA ∴ $\frac{2,8}{2} \times 126 = 176,4$ min ✓MCA $\frac{176,4}{60} = 2,94$ hrs ✓C ∴ 2h 56 min ✓C ∴ Incorrect ✓O	(7)	
5.1.4	New price = € 157 × 1,10 ✓MA = € 172,70 ✓CA In Rand $172,70 \times 18,20 = R3143,14$ ✓C Thus not enough set aside ✓O	1MA increase by correct percentage 1CA answer 1C convert to Rand 1O opinion	F L4 (4)
5.2.1	✓MA B = 115,73 – 57,63 = 58,1 m $= \frac{58,1}{325} = \frac{581}{3250}$ ✓MCA = 0,179 ✓S	1MA subtracting correct values MCA correct fraction 1S simplification	M L2 (3)
5.2.2	✓RT ✓MA Outer width = 74,24 × 1,59 = 118,0416 m ✓CA OR ✓RT Outer width = $74,24 + (74,24 \times \frac{59}{100})$ ✓MA = 118,0416 ✓CA	1RT 74,24 m 1MA multiply with 1,59 1CA answer OR 1RT 74,24 m 1MA adding 59% 1CA answer	M L2 (3)
5.2.3	No. of months = (Mar 2026 – Mar 1889) + (April – September) ✓MA = 137 years + 6 months ✓MCA = (137 × 12) + 6 ✓MA = 1 650 months ✓CA ✓MA	1MA subtracting years 1MCA multiply years by 12 1MA adding 6 months 1CA no of months	M L3 (4)

5.2.4	Total mass of poles = $18\,038 \times 450\text{ kg}$ $= 8\,117\,100\text{ kg}$ Total mass per metre = $\frac{8\,117\,100}{325} \checkmark \text{MCA}$ $= 24\,975,69231\text{ kg/m} \checkmark \text{CA}$ $\approx 24,976\text{ ton/m} \checkmark \text{C}$ OR Total poles per metre = $\frac{18038}{325} \checkmark \text{MCA}$ $= 55,5015\text{ pole/m}$ Mass: $55,5015 \times 450\text{ kg} \checkmark \text{MCA}$ $= 24\,975,692\text{kg} \checkmark \text{CA}$ $\approx 24,976\text{ ton/m} \checkmark \text{C}$ $\checkmark \text{MA}$ OR $18038 : 325\text{ m}$ $1\text{ pole} : ?\text{ m}$ $\frac{1}{18038} \times 325 = 0,01082\text{ m}$ $\therefore 1\text{ pole} : 0,01082$ $450\text{ kg} : 0,01082\text{ m}$ 1 $\therefore \frac{1}{0,01082} \times 450$ $= 24,975,69\text{ ton/m}$	1MA multiply correct values 1RT correct height of 325 1MCA divide with height 1CA answer 1C conversion to ton OR 1RT correct height of 325 1MA divide with height 1MCA multiply correct values 1CA answer 1C conversion to ton (5)	M L3
			[32]
		TOTAL:	150