Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2025

MATHEMATICAL LITERACY P2

MARKS: 150

TIME: 3 hours

MLITE2

This question paper consists of 14 pages and an addendum with 2 annexures.

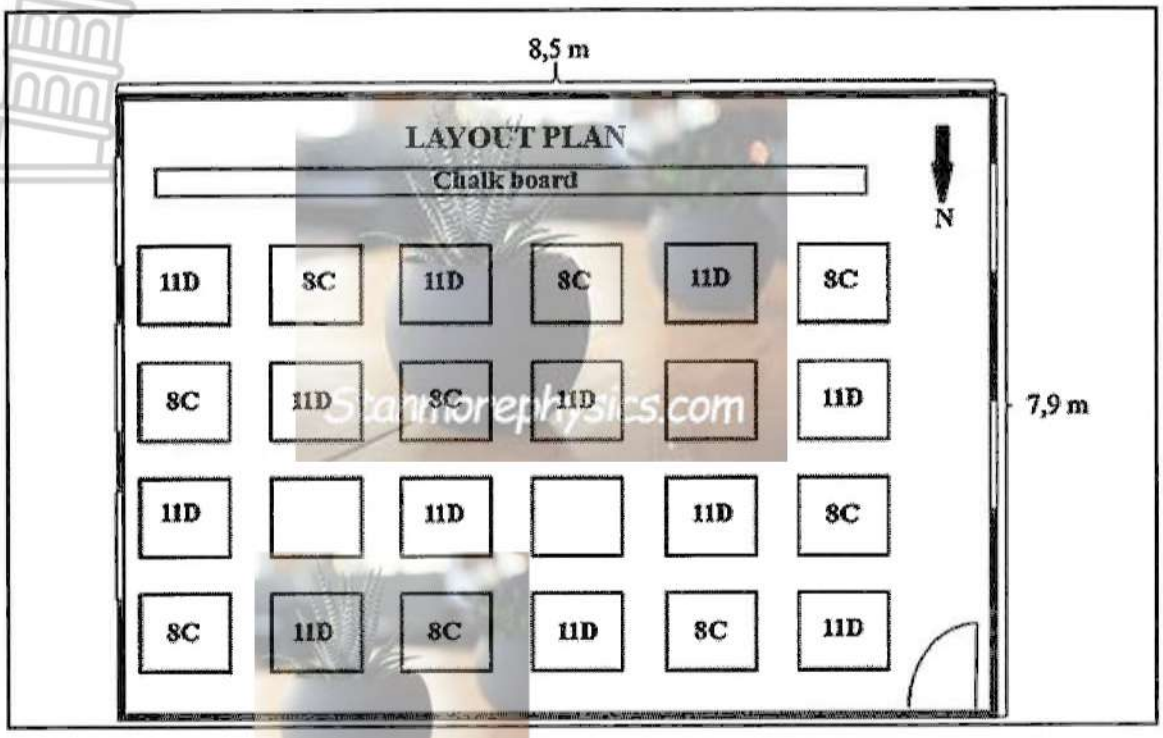
INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:
   - ANNEXURE A for QUESTION 2.2
   - ANNEXURE B for QUESTION 5.1
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 Study the layout plan of a classroom at Rosemary High School below that is used for examination purposes.



Use the information above to answer the questions that follow.

1.1.1 Determine the number of learners that will be writing the examination in this classroom. (2)

1.1.2 Write the number of Grade 8 learners to the number of Grade 11 learners as a ratio in its simplified form. (2)

1.1.3 Determine the number of windows in this classroom. (2)

1.1.4 Is the door opening clockwise or anticlockwise? (2)

1.1.5 Convert the longest side of the classroom wall to millimetres. (2)

1.2 Rosemary High school has a tuckshop that offers a variety of coffees, juices, sandwiches and muffins in different sizes.

The different coffee cup sizes used for the coffees are shown below.

Use the information above to answer the questions that follow.

1.2.1 A 250 ml cup of coffee costs R15,00. Determine the cost of ONE millilitre of coffee. (2)

1.2.2 Convert the size of the largest cup to litres. (2)

1.2.3 The tuckshop assistant fills the cups to 95% capacity to avoid spillage.

Define the term *capacity* in the given context. (2)

1.2.4 Hence, calculate how much coffee the 500 ml cup would hold at a capacity of 95%. (2)

1.3 The Principal of Rosemary High school has decided to renovate the staff bathrooms and install new circular mirrors together with a few other renovations.

The mirrors that will be bordered with black rubber band to make the edges safer, is shown in the diagram below.

Scale 1 : 5

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

1.3.2 Determine the diameter of the mirror to the nearest centimetre. (3)

1.3.3 Calculate the length of the black rubber band that is used to make the mirror safer.

You may use the following formula:

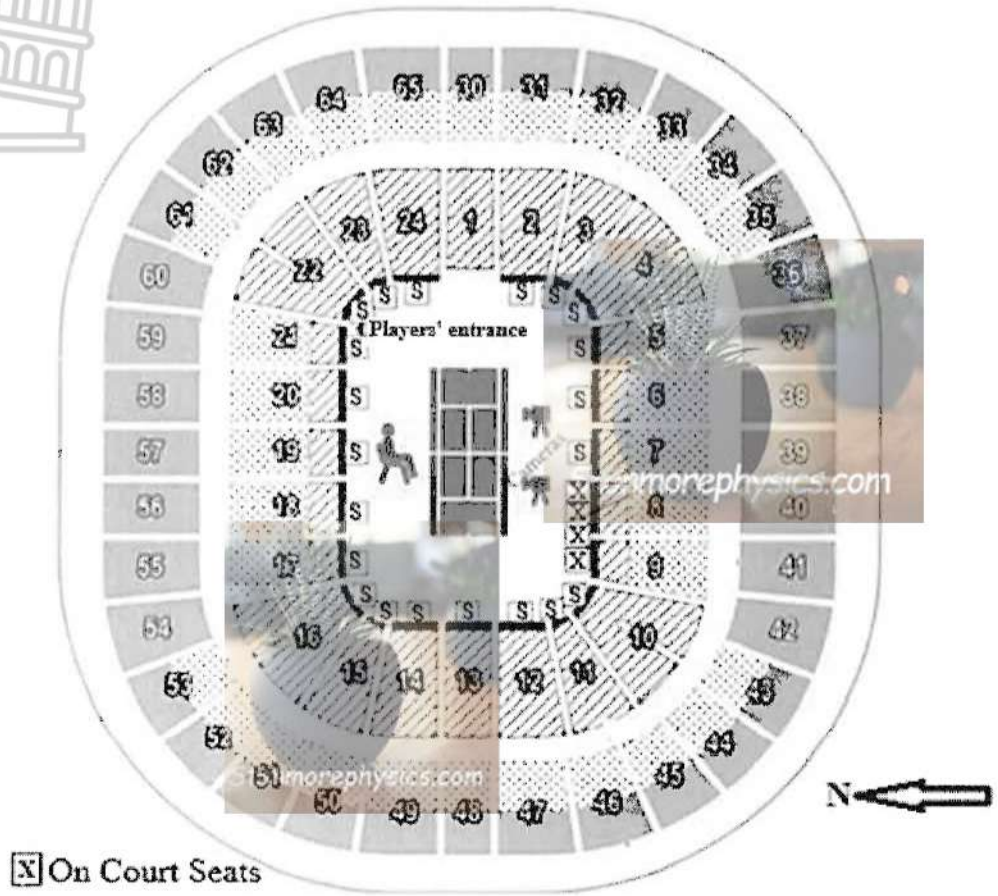
Circumference of a circle = 2 × π × radius, where **π = 3,142** (2)

1.3.4 Hence, define the term *circumference* in this context. (2)

[27]

QUESTION 2

2.1 The seating arrangements at Rod Laver Arena, a tennis stadium in Australia is shown below. Use the seating arrangements to answer the questions that follow.



Seating plan at Rod Laver Arena

[Adapted from www.jovis.edu.vn]

2.1.1 Give the general direction of the cameras from the players' entrance. (2)

2.1.2 Write the number of the on court seats to the number of the super row seats as a decimal fraction and round your final answer off to ONE decimal place. (3)

2.1.3 Give a clear set of directions to a tennis player that enters at the players' entrance and wants to go to seat eighteen without interfering with the cameras. (3)

2.1.4 Explain why do you think that the front row seats are called the '*super row*'. (2)

2.2 The road map of Melbourne and surrounding areas are shown in ANNEXURE A. Use ANNEXURE A to answer the following questions.

2.2.1 List TWO educational institutions that can be found on this part of the map. (2)

2.2.2 The map distance from Carl's residence to the National Gallery of Victoria is 18,3 cm. Use the scale on the map to determine the actual distance in kilometres. (4)

2.2.3 Identify the sport and entertainment area north from Carl's residence. (2)

2.2.4 The distance from Carl's residence to the Rod Laver Arena is 2,7 km. If Carl travels by car at an average speed of 20 km/h, the distance is covered.

Carl claims that his walking time to the Rod Laver Arena is 33 minutes, but if he travels by car, he will reach the arena in a quarter of his walking time.

Verify, with the necessary calculations, whether his claim is VALID.

You may use the following formula: $\textbf{Time} = \frac{\textbf{Distance}}{\textbf{Speed}}$ (6)

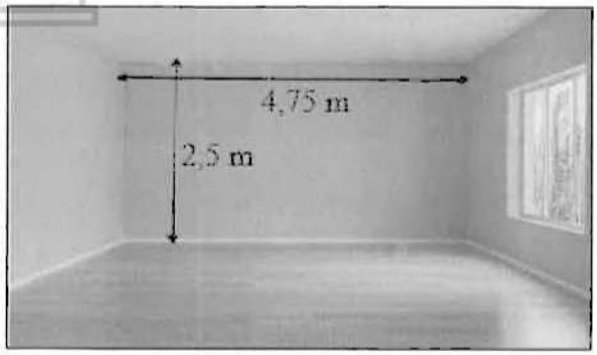
2.2.5 Give ONE reason why Carl would prefer to walk to Rod Laver Arena instead of driving. (2)

2.2.6 Determine the probability of randomly selecting a bus station on the eastern half of this map. (2)
[28]

QUESTION 3

3.1 You decided to start a small printing and advertising business to generate funds that will assist you with finances for your tertiary education. Your parents gave permission for you to change the spare bedroom into an office space to do your business.

The dimensions of the wall where you wish to place your desk against, is shown in the diagram below.



Dimensions of the wall:

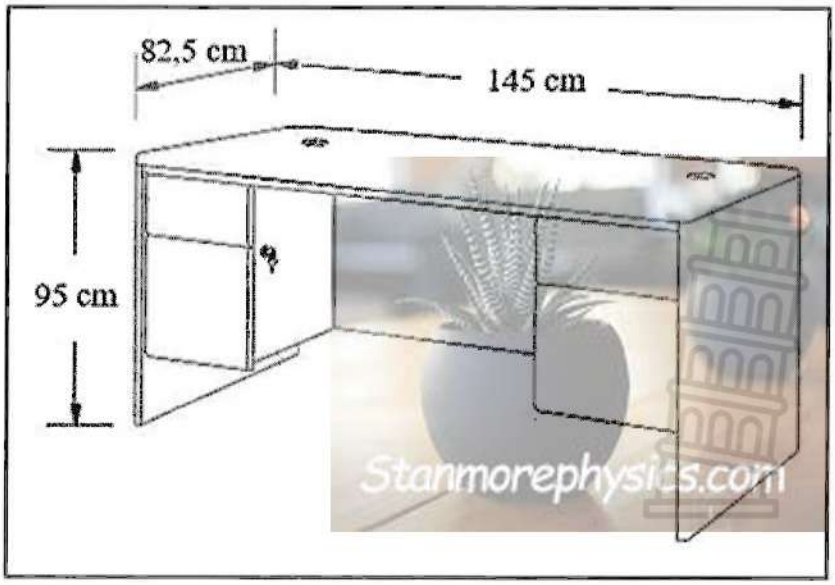
Length = 4,75 m
Height = 2,5 m

3.1.1 One litre of paint costs R89,95 and covers 5,9 m^2. Determine how much it will cost you to paint the wall with a double coat of paint.

You may use the following formula:

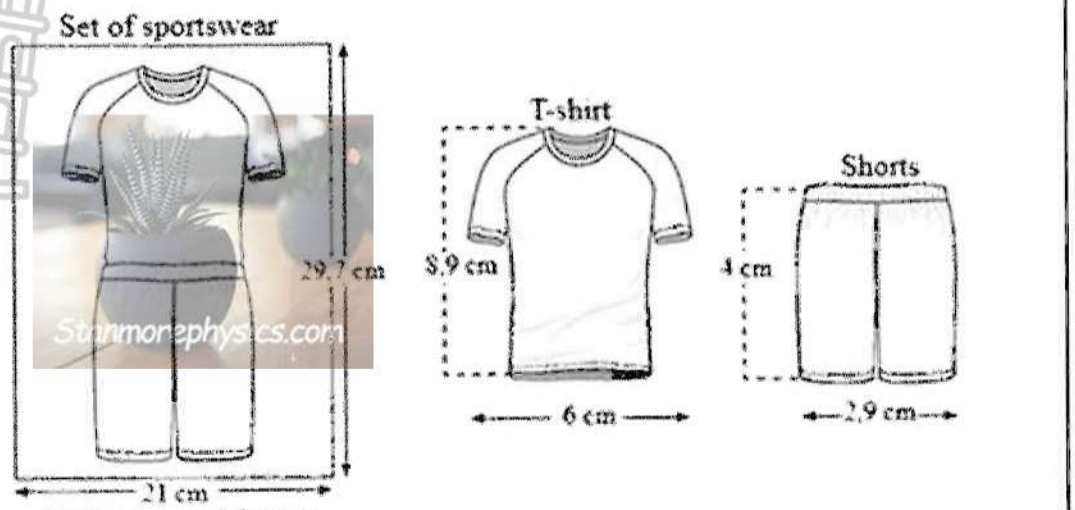
Area of a rectangle = length × height (7)

3.1.2 Below are the dimensions of a desk that you plan to place in your office.



Determine the maximum number of desks you can fit next to each other across the length of the wall. (4)

3.2 Your school's sport committee asked you to print flyers (on an A4-page) of the design of a set of sportswear. The design plan of the set of sportswear is shown in the diagram below.



Design on an A4-page

3.2.1 Determine the width of the A4-page in metres (m). (2)

3.2.2 When the sportswear is worn, 6,95% of the t-shirt is tucked into the shorts as illustrated on the A4-page above.

Calculate the length of the t-shirt that is visible. (4)

3.2.3 The head of the sports committee claims that the total visible length (on the A4-page) of the set of sportswear when it is worn with the t-shirt tucked in, is 13 cm.

Verify, with the necessary calculations, whether the claim is VALID. (3)

3.3 The cricket coach was recruiting girls to join the cricket team. All athletes who showed interest had to provide their mass, height and age to join the cricket team.

Below is a table containing the mass, height and age of three girls as well as a Body-mass Index (BMI) weight status table.

TABLE 1: Mass, height and age of THREE girls interested in the cricket team

NAME	MASS (kg)	HEIGHT (m)	AGE (years)
Samantha	67	1,59 m	16
Thandeka	82,5	1,72 m	19
Mariaan	50	1,41 m	17

TABLE 2: BMI – WEIGHT STATUS TABLE

BODY MASS INDEX (BMI)	WEIGHT STATUS
Below 18,5	Underweight
18,5 to 24,9	Healthy
25 to 29,9	Overweight
30,0 +	Obesity
40,0 +	Severe Obesity

[Source: https://www.google.co.za/ body-mass-index-explained]

Use the information in the tables above to answer the following questions.

3.3.1 Identify the weight status of a member on the cricket team with a BMI of more than 30 kg/m^2 and less than 40 kg/m^2. (2)

3.3.2 Thandeka's mother advised that she loses some weight if she wants to play sport.

Verify, with the necessary calculations, whether Thandeka's mother was correct about her being overweight and not in good shape to play sport. Give your answer to THREE decimal places.

You may use the following formula:

$$\textbf{BMI} = \frac{\textbf{Mass (kg)}}{\textbf{Height (m)}^2}$$ (4)

3.3.3 Provide TWO ways that can assist Thandeka to lose weight and live healthier. (4)
[30]

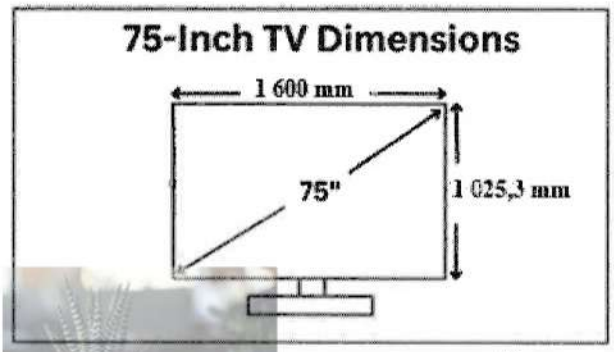
QUESTION 4

4.1 Plasma screen televisions (TV's) are generally imported from China. The TV's are always transported in a box, but before TV's are boxed and shipped, the manufacturers wrap the TV's in protective material.

The packaging boxes of the plasma TV's have dimensions of 1 605 mm × 100 mm × 1 030 mm.

The dimensions of the shipping containers' are 6,5 m × 2,5 m × 2,9 m.

A 75-inch plasma TV with dimensions are shown in the diagram below.



[Source: www.googleimages.com]

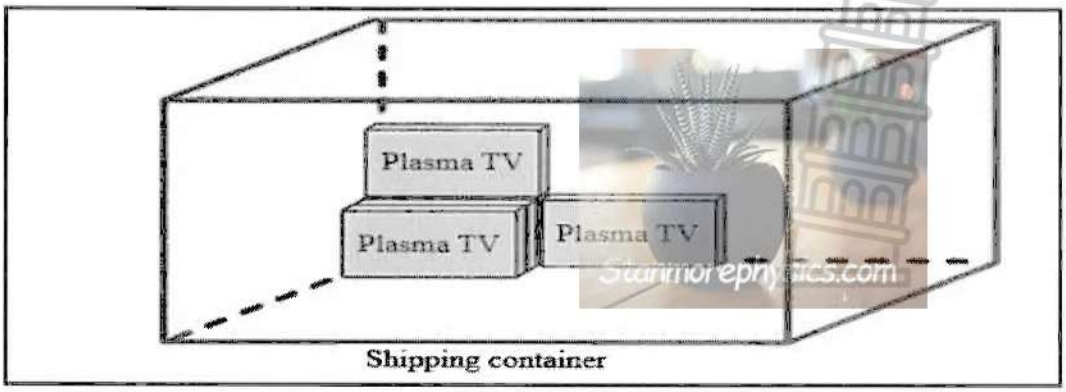
4.1.1 Calculate the area of one of the plasma TV's in cm^2.

You may use the following formula:

Area of a rectangle = length × width (3)

4.1.2 Determine the scale of the drawing if the measured length of the plasma TV is 30 mm. Give your answer in the form of 1: … (2)

4.1.3 Determine the number of boxed plasma TV's that can be loaded onto a shipping container if it is packed according to the example below.



(6)

4.1.4 For quality control purposes, containers are randomly checked for defective TV's. Based on your answer in QUESTION 4.1.3, if one in every 50 TV's is defective, determine the probability, as a percentage, of picking a defective TV in this container. (3)

4.1.5 If one plasma TV costs R65 750, determine the cost of the total number of plasma TV's in this container. (2)

4.1.6 Provide ONE reason why manufacturers wrap the plasma TV's in protective material. (2)

4.2 Shane and Mike respectively used a bus and a minibus (taxi) to transport people from Bloemfontein to Durban during the 2024 festive season. The simplified ratio of the diameter of the tyre of the minibus to the diameter of the tyre of the bus is 5 : 11, as shown in the diagram below.

Diameter of bus tyre = _____

Diameter of minibus (taxi) tyre = 55 cm

4.2.1 Calculate the diameter of the tyre of the bus. (2)

4.2.2 Calculate the volume (in cm^3) of the tyre of the minibus (taxi) if the height of the tyre 70 cm.

You may use the following formula:

Volume of a cylinder = $\pi \times$ **radius**$^2 \times$ **height**, where π = **3,142** (3)

4.2.3 If the minibus (taxi) is a 15-seater and the bus a 60-seater, determine the following:

(a) How many loads of a minibus (taxi) can fill the bus? (2)

(b) The total amount the bus company would make for a return trip between Bloemfontein and Durban with a full load, if the cost of a single trip is R417 per person. (3)

(c) Why is it important to take vehicles for maintenance and repairs after a specified number of kilometres are travelled? Provide ONE reason. (2)

[30]

QUESTION 5

5.1 The Rosseau family would like to install a new swimming pool before the hot summers. ANNEXURE B shows the swimming pool that they want to install.

The area of the pool is 65 m^2.

PLEASE NOTE:
1 m^3 = 1 000 litre
1 gallon = 3,785 litres

5.1.1 Identify the formula that is used to calculate the total surface area (TSA) of the swimming pool.

(a) TSA = 2 + π + radius + height

(b) TSA = π × $radius^2$ × height

(c) TSA = π × $radius^2$ + (2 × π × radius × height) (2)

5.1.2 Calculate the radius of the swimming pool.

You may use the following formula:

Area of a cylinder = π × $radius^2$, where **π = 3,142** (4)

5.1.3 Calculate the volume of water, in gallons, that will be needed to fill the swimming pool to its maximum capacity.

You may use the following formula:

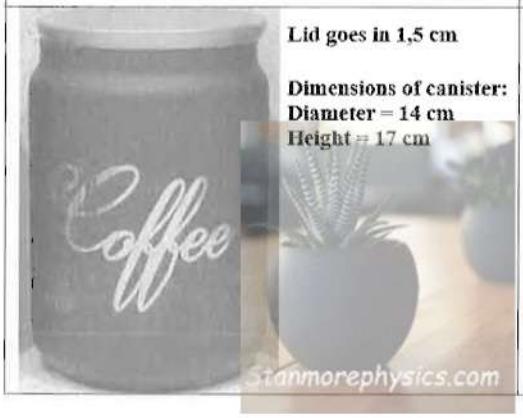
Volume of a cylinder = π × $radius^2$ × depth, where **π = 3,142** (5)

5.1.4 Mr Rosseau claims that it will take more than 25 hours to fill the pool if the water flows in at 30 000 gallons per 40 hours.

Verify, with the necessary calculations, whether his claim is VALID. (3)

5.2 Mrs Rosseau decided to buy a new canister set to brighten up her kitchen. She saw two different sets of canisters as shown in the table below.

TABLE 3: DIFFERENT SHAPES OF CANISTER SETS

CYLINDRICAL CANISTERS	RECTANGULAR CANISTERS
	
 **Lid goes in 1,5 cm** **Dimensions of canister:** **Diameter = 14 cm** **Height = 17 cm**	 **Lid goes in 1,5 cm** **Dimensions of canister:** **Length = 15 cm** **Width = 13,5 cm** **Height = 17 cm**

[Source: https://www.etsy.com]

The following formulae may be used:

Surface area of a cylindrical canister =

$\pi \times \text{radius}^2 + (2 \times \pi \times \text{radius} \times \text{height})$, where **$\pi = 3{,}142$**

Surface area of a rectangular canister =

(length × width) + 2 × (length × height) + 2 × (width × height)

Use the information in TABLE 3 above to answer the questions below.

5.2.1 Determine the height of the sugar in the rectangular canister if the canisters are filled to just below the lid. (2)

5.2.2 Both sets of coffee canisters are made of stainless steel lined with transparent film that is made from assorted plastics.

Calculate the difference in the size of the transparent film that is used to line the cylindrical and the rectangular canisters, respectively. (7)

5.2.3 If the volume of the rectangular canister is 3 442,5 cm^3, determine the number of grams to the nearest 50 g of sugar that can be poured into this canister.

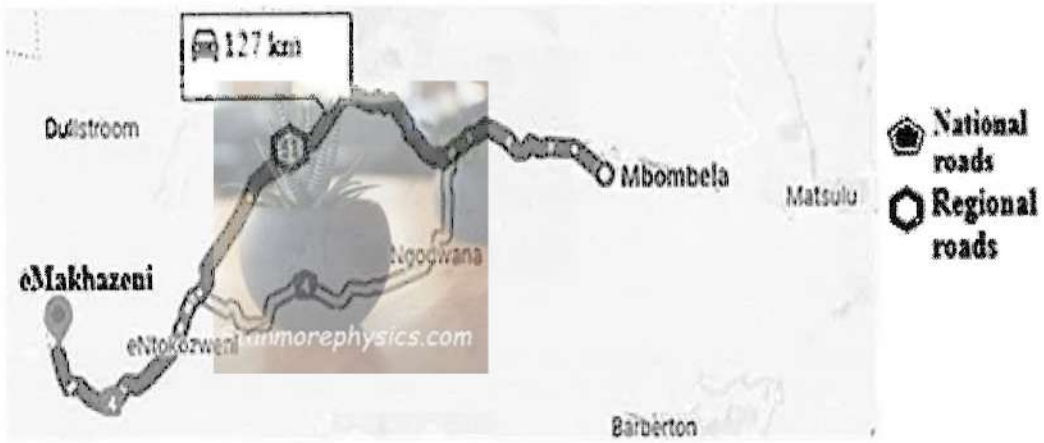
You may use the following formula:

$$\textbf{Density (g/cm}^3\textbf{)} = \frac{\textbf{Mass (g)}}{\textbf{Volume (cm}^3\textbf{)}}$$

NOTE:
Density of the sugar: 1 cm^3 = 0,8521 gram of sugar (3)

5.2.4 Why, in your opinion, does the manufacturers line the canisters with transparent film? Mention ONE reason. (2)

5.3 Mr and Mrs Rosseau live in Mbombela. They had to travel to eMakhazeni for a funeral. An extract of the map below illustrates the travelling distance between Mbombela and eMakhazeni.



[Adapted from www.googleimages.com]

5.3.1 Calculate how long (in hours and minutes) it took Mr and Mrs Rosseau to reach eMakhazeni if they travelled at an average speed of 75 km/h.

You may use the following formula:

$$\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{Time}}$$ (5)

5.3.2 Determine the probability that Mr and Mrs Rosseau will travel on a regional road to get to eMakhazeni. (2)
[35]

TOTAL: 150

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GRADE 12

SEPTEMBER 2025

MATHEMATICAL LITERACY P2 ADDENDUM

MARKS: 150

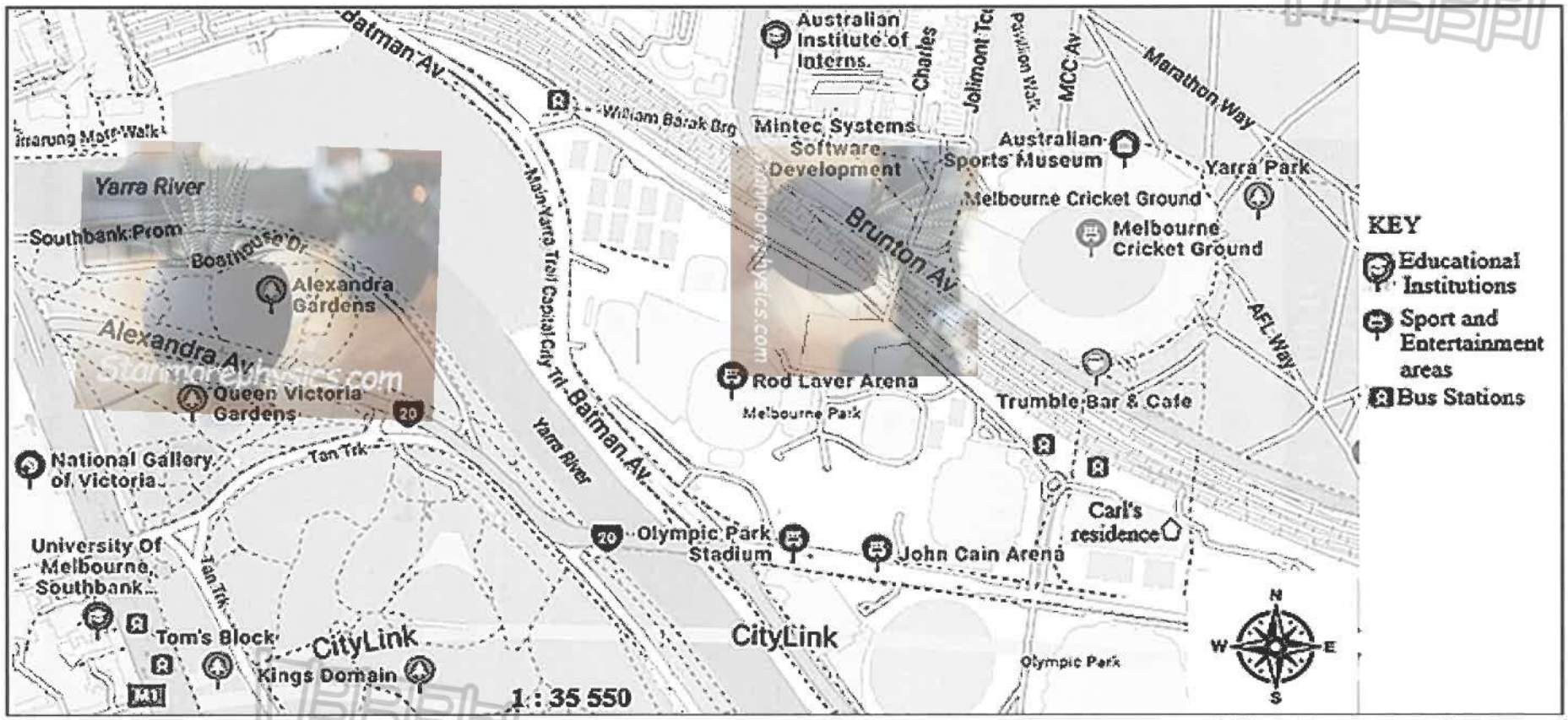
TIME: 3 hours

MLADE2

This addendum consists of 3 pages with 2 annexures.

ANNEXURE A: QUESTION 2.2

THE ROAD MAP OF MELBOURNE AND SURROUNDING AREAS



[Adapted from www.goolemaps.co.za]

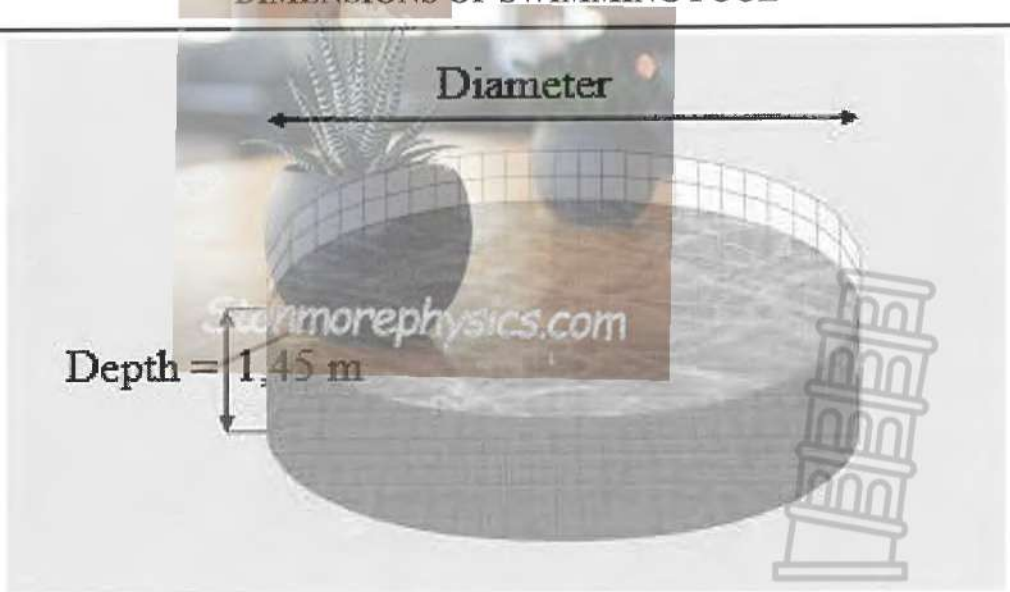
18,36: 200 km ⇒ 10 cm

18

ANNEXURE B: QUESTION 5.1

TOP VIEW OF SWIMMING POOL

DIMENSIONS OF SWIMMING POOL



[Adapted from www.googleimages.com]

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Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2025

MATHEMATICAL LITERACY P2
MARKING GUIDELINE

MARKS: 150

Symbol	Explanation
M	Method
MA	Method with 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.
R	Rounding Off/Reason
NPR	No penalty for correct rounding minimum two decimal places
AO	Answer only
MCA	Method with consistent accuracy
RCA	Rounding with consistent accuracy

This marking guideline consists of 11 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 penalise for every extra incorrect item presented.

KEY TO TOPIC SYMBOL:
F = Finance; M = Measurement; MP = Maps, plans and other representations; P = Probability

QUESTION 1 [27 MARKS] **ANSWER ONLY FULL MARKS**

Ques.	Solution	Explanation	Level
1.1.1	21 learners ✓✓A	2A number of learners (2)	MP L1
1.1.2	Ratio = 9 : 12 ✓A 3 : 4 ✓A	1A correct ratio 1A simplified form (2)	MP L1
1.1.3	5 windows ✓✓A	2A number of windows (2)	MP L1
1.1.4	Clockwise ✓✓A	2A correct direction (2)	MP L1
1.1.5	Longest side = 8,5 m × 1 000 ✓C = 8 500 mm ✓A	1C multiply by 1 000 1A answer in mm (2)	MP L1
1.2.1	Cost of one mℓ = $\frac{R15,00}{250}$ ✓M = R0,06 ✓A **OR 6c/ml**	1M dividing correct values 1A cost of one mℓ (2)	M L1
1.2.2	Size of largest cup = $\frac{500\ ml}{1\ 000}$ ✓C = 0,5 ℓ ✓A	1C divide by 1 000 1A answer in ℓ (2)	M L1
1.2.3	Capacity refers to the maximum amount of liquid the cup can hold.✓✓A	2A definition (2)	M L1
1.2.4	Capacity = $\frac{95}{100}$ × 500 mℓ ✓M = 475 mℓ ✓A	1M multiply correct values 1A capacity in mℓ (2)	M L1
1.3.1	One unit on the map represents five units in reality. ✓✓A **OR** 1 cm on the map represents 5 cm in reality. ✓✓A	2A explanation (2)	MP L1
1.3.2	Diameter = 15,35 cm × 2 ✓M = 30,7 cm ✓A = 31 cm ✓R	1M multiply by 2 1A diameter 1R rounding (3)	M L1
1.3.3	Circumference of a circle = 2 × π × radius = 2 × 3,142 × 15,35 ✓SF = 96,4594 = 96,459 cm ✓A **(Accept 96,46 OR 96,5 cm)**	1SF substitution 1A circumference **NPR** (2)	M L1
1.3.4	Circumference refers to the total distance around the mirror.✓✓A	2A definition (2)	M L1
		[27]	

QUESTION 2 [28 MARKS]

Ques.	Solution	Explanation	Level
2.1.1	Southwest **OR** SW ✓✓A West of south	2A correct direction (2)	MP L1
2.1.2	On courts seats = 4 ✓A Super row seats = 21 ✓A Decimal fraction = $\frac{4}{21}$ = 0,190… = 0,2 ✓R	1A number of on court seats 1A number of super row seats 1R correct rounding (3)	MP L1
2.1.3	Coming through the players entrance, walk straight until seat 5, ✓A then turn right and walk straight behind the cameras to seat 10. ✓A Turn right and walk straight to seat 15, turn right passing seat 15, 16 and 17 until seat 18. ✓A **(Accept any logical direction given)**	1A straight to seat 5 1A behind the cameras to seat 10 1A passing seat 15, 16 and 17 until seat 18 (3)	MP L2
2.1.4	The view from front row seats is clearer and uninterrupted. ✓✓A **OR** It gives the best view of performances. ✓✓A **(Accept any other relevant explanation)**	2A explanation (2)	MP L4
2.2.1	University of South Melbourne, Southbank ✓RT Australian Institute of Interns ✓RT	1RT first institution 1RT second institution **(Accept any order)** (2)	MP L2
2.2.2	Actual distance = 18,3 cm × 35 550 ✓M = 650 565 cm ✓A = $\frac{650\ 565}{100\ 000}$ ✓C = 6,50565 km ≈ 6,51 km ✓CA **(Accept 6,5 km OR 6,506 km)**	1M multiplying with scale 1A answer 1C dividing by 100 000 1CA actual distance **(NPR)** (4)	MP L2
2.2.3	Melbourne cricket ground ✓✓A	2RT correct place identified (2)	MP L2

2.2.4	Time spent walking $= \frac{2{,}7 \text{ km}}{20 \text{ km/h}}$ ✓SF $= 0{,}135 \text{ hours} \times 60$ ✓A $= 8{,}1 \text{ minutes}$ ✓CA **OR** $\frac{1}{4} \times 33$ ✓M $= 8{,}25 \text{ minutes}$ ✓CA $\therefore \frac{8{,}1}{33} = 0{,}2454$ ✓M $= 0{,}25$ ✓CA ∴ The statement is valid ✓O	1SF substitution 1A time in hours 1C time in minutes 1M calculating a quarter of walking time 1CA answer 1O opinion (6)	MP L4
2.2.5	Walking is a great form of exercise. ✓✓A **OR** Walking limits air pollution caused by gas emissions from the car. ✓✓A **OR** Walking is free. Save on petrol cost. ✓✓A **OR** When you walk you can take short cuts and avoid traffic jams.✓✓A **(Accept any other relevant explanation)**	2A explanation (2)	MP L4
2.2.6	Probability $= \frac{2}{5}$ ✓A ✓A	1A numerator 1A denominator (2)	P L2
			[28]

QUESTION 3 [30 MARKS]

Ques.	Solution	Explanation	Level
3.1.1	Area of a rectangle = length × height = 4,75 m × 2,5 m ✓SF = 11,875 m^2 × 2 coats ✓M = 23,75 m^2 ✓A No of litres of paint = $\frac{23,75}{5,9}$ ✓M = 4,0254 litres ≈ 5 litres ✓R Cost of paint = 5 litres × R89,95 ✓M = R449,75 ✓CA **OR** Area of a rectangle = length × width = 4,75 m × 2,5 m ✓SF = 11,875 m^2 ✓A No of litres of paint = $\frac{11,875}{5,9}$ ✓M = 2,012711864 × 2 ✓M = 4,0254 ≈ 5 litres ✓R Cost of paint = 5 litres × R89,95 ✓M = R449,75 ✓CA	1SF substitution 1M multiply by 2 coats 1A area for 2 coats 1M dividing by spread rate 1R no of litres of paint 1M multiply with cost 1CA cost **OR** 1SF substitution 1A area of wall 1M dividing by spread rate 1M multiply by 2 coats 1R no of litres of paint 1M multiply with cost 1CA cost (7)	F L3
3.1.2	Length of wall = 4,75 m × 100 = 475 cm ✓C No of desks next to each other = $\frac{475}{145}$ ✓M = 3,2758 ✓CA ≈ 3 desks ✓R **OR** Length of desk = $\frac{145\ cm}{100}$ = 1,45 m ✓C No of desks next to each other = $\frac{4,75}{1,45}$ ✓M = 3,2758…✓CA ≈ 3 desks ✓R	1C length in cm 1M divide by length of desk 1CA answer 1R rounding **OR** 1C length in m 1M divide by length of desk 1CA answer 1R rounding (4)	M L2

3.2.1	Width of page $= \frac{21}{100}$ ✓C $= 0{,}21$ m ✓A	1C divide by 100 1A width in meters (2)	M L1
3.2.2	Length of t-shirt tucked $= \frac{6{,}95}{100} \times 8{,}9$ cm ✓M $= 0{,}61855$ cm ✓A Length of t-shirt visible $= 8{,}9$ cm $- 0{,}61855$ cm ✓M $= 8{,}28145$ $\approx 8{,}28$ cm ✓CA **OR** % of t-shirt visible $= 100\% - 6{,}95\%$ ✓M $= 93{,}05\%$ ✓A Length of t-shirt visible $= \frac{93{,}05}{100} \times 8{,}9$ cm ✓M $= 8{,}28145$ $\approx 8{,}28$ cm ✓CA	1M calculating 6,95% 1A length of t-shirt tucked 1M subtraction 1CA length of t-shirt visible **OR** 1M subtracting % 1A % of length of t-shirt visible 1M calculating 93,05% 1CA length of t-shirt visible (4)	M L2
3.2.3	Actual length of sportswear $= 8{,}28$ cm $+ 4$ cm ✓M $= 12{,}28$ cm ✓CA ∴ Statement is invalid ✓O	**CA from 3.2.2** 1M addition 1CA length 1O opinion (3)	M L4
3.3.1	Obesity ✓✓RT	2RT correct weight status (2)	M L1
3.3.2	BMI $= \frac{82{,}5 \text{ kg}}{1{,}72^2}$ ✓SF $= 27{,}8866\ldots$ ✓S $\approx 27{,}887$ kg/m^2 ✓R ∴ Her mother was correct ✓O	1SF substitution 1S simplification 1R rounding to three decimal places 1O opinion (4)	M L4
3.3.3	Eat less fatty food ✓✓A **OR** Eat regular, smaller meals ✓✓A **OR** Exercise ✓✓A **OR** Drink enough water ✓✓A **OR** Limit intake of fizzy drinks ✓✓A **(ANY TWO)** **(Accept any relevant answer)**	2A 1st method 2A 2nd method (4)	M L4
			[30]

QUESTION 4 [30 MARKS]

Ques.	Solution	Explanation	Level
4.1.1	Area of rectangle = length × width ✓C = 160 cm × 102,53 cm ✓SF = 16 404,8 cm^2 ✓CA **OR** Area of rectangle = length × width = 1 600 mm × 1 205,3 mm ✓SF = 1 640 480 mm^2 $\therefore \frac{1\,640\,480}{100}$ ✓C = 16 404,8 cm^2 ✓CA	1C conversion 1SF substitution 1CA area in cm^2 **OR** 1SF substitution 1C conversion 1CA area in cm^2 (3)	M L2
4.1.2	Scale = 30 mm : 1 600 mm $= \frac{30}{30} : \frac{1\,600}{30}$ ✓M = 1 : 53,33 ✓A **Accept 1:53 OR 1:53,3**	1M divide by 30 1A scale **NPR** (2)	MP L1
4.1.3	Length of container = $\frac{6,5\text{ m}}{1,605\text{ m}}$ ✓M = 4,049… ≈ 4 boxes ✓A Width of container = $\frac{2,5\text{ m}}{0,1\text{ m}}$ = 25 boxes ✓A Height of container = $\frac{2,9\text{ m}}{1,03\text{ m}}$ = 2,815… ≈ 2 boxes ✓A ∴ Total no. of boxes in container = 4 × 25 × 2 ✓M = 200 boxes ✓CA	1M dividing lengths 1A no. of boxes on length 1A no. of boxes on width 1A no. of boxes stacked 1M multiplication 1CA no. of boxes (6)	MP L3
4.1.4	Probability = $\frac{4\ \checkmark A}{200\ \checkmark A}$ × 100% = 2% ✓CA **If = $\frac{1}{50}$ × 100% = 2%** **ONLY 1 MARK**	**CA from 4.1.3** 1A numerator 1A denominator 1CA probability as % (3)	P L2
4.1.5	Total cost = R65 750 × 200 ✓M = R13 150 000 ✓CA	**CA from 4.1.3** 1M multiply with price 1CA total cost (2)	F L1

4.1.6	The protective material prevent damages to the plasma TV when transported. ✓✓A **OR** The protective material keeps the plasma TV from moving in the box and cause possible breakage. ✓✓A (**Accept any other relevant explanation**)	2A explanation (2)	MP L4
4.2.1	Diameter of bus tyre $= \frac{55}{5} \times 11$ ✓M $= 121$ cm ✓CA **OR** Diameter of bus tyre $= \frac{11}{5} \times 55$ ✓M $= 121$ cm ✓CA	1M dividing and multiplying 1CA diameter (2)	M L1
4.2.2	Radius $= \frac{55}{2} = 27{,}5$ cm ✓M Volume of a cylinder $= \pi \times \text{radius}^2 \times \text{height}$ $= 3{,}142 \times (27{,}5)^2 \times 70$ ✓SF $= 166\,329{,}625\ \text{cm}^3$ ✓CA **(Accept 166 329,6 OR 166 329,63 cm^3)**	1M finding radius 1SF substitution 1CA volume **NPR** (3)	M L2
4.2.3 (a)	No. of loads $= \frac{60}{15}$ ✓M $= 4$ loads ✓CA	1M dividing correct values 1CA no. of loads (2)	M L1
4.2.3 (b)	Total cost = R417 × 60 ✓M = R25 020 × 2 ✓M = R50 040 ✓A **OR R417 × 2 × 60 = R50 040**	1M multiply with cost 1M multiply by 2 1A total cost (3)	F L1
4.2.3 (c)	Preventing vehicle breakdown ✓✓A **OR** Maintaining the vehicle ensures safety of all passegers, including the driver ✓✓A **OR** Maintaining of vehicle prevents premature wear and tear ✓✓A **OR** Maintaining a vehicle helps to avoid expensive repairs when the vehicle breaks down. ✓✓A (**Accept any other relevant explanation**)	2A correct explanation (2)	M L4
			[30]

QUESTION 5			
Ques.	**Solution**	**Explanation**	**Level**
5.1.1	C **OR** TSA = $\pi \times \text{radius}^2 + (2 \times \pi \times \text{radius} \times \text{height})$ ✓✓A	2A correct answer (2)	M L1
5.1.2	Area of a cylinder = $\pi \times \text{radius}^2$ $\frac{65}{3,142} = 3,142 \times \text{radius}^2$ ✓SF ✓M $\text{Radius}^2 = 20,68746022$ $\therefore$ radius = $\sqrt{20,68746022}$ ✓M = 4,5483… = 4,55 m ✓CA **(Accept 4,548 OR 4,5 m)**	1SF substitution 1M dividing area with 3,142 1M finding square root 1CA radius **NPR** (4)	M L2
5.1.3	Volume of a cylinder = $\pi \times \text{radius}^2 \times \text{depth}$ = $3,142 \times 4,55^2 \times 1,45$ ✓SF = 94,31851975 m^3 ✓CA No. of litres = 94,3185… × 1 000✓C = 94 318,51975 litres No. of gallons = $\frac{94\,318,51975}{3,785}$ ✓M = 24 919,02768 gallons ≈ 24 919,03 gallons ✓CA **(Accept 24 919 OR 24 919,028)**	**CA from 5.1.2** 1SF substitution 1CA volume in cm^3 1C converting to liters 1M dividing correct values 1CA no. of gallons **NPR** (5)	M L3
5.1.4	Rate = $\frac{24\,919,03}{30\,000} \times 40$ ✓M = 33,225 hours ✓CA $\therefore$ Mr Rosseau's claim is VALID ✓O	**CA from 5.1.3** 1M dividing correct values and multiply by 40 1CA no. of hours 1O opinion (3)	M L4
5.2.1	Height of sugar = 17 cm – 1,5 cm ✓M = 15,5 cm ✓A	1M subtraction 1A answer (2)	M L1

5.2.2	TSA = $\pi \times \text{radius}^2 + (2 \times \pi \times \text{radius} \times \text{height})$ ✓M $= 3{,}142 \times 7^2 + (2 \times 3{,}142 \times 7 \times 17)$ ✓SF $= 901{,}754\ \text{cm}^2$ ✓CA TSA = (length × width) + 2 × (length × height) + 2 × (width × height) $= (15 \times 13{,}5) + 2 \times (15 \times 17) + 2 \times (13{,}5 \times 17)$ ✓SF $= 202{,}5 + 510 + 459$ $= 1\ 171{,}5\ \text{cm}^2$ ✓S ✓M Difference in plastic used = $1\ 171{,}5\ \text{cm}^2 - 901{,}754\ \text{cm}^2$ $= 269{,}746\ \text{cm}^2$ ✓CA	1M finding the radius 1SF substitution 1CA answer 1SF substitution 1S simplification 1M subtraction 1CA answer (7)	M L3
5.2.3	$0{,}8521\ \text{g/cm}^3 = \frac{\text{Mass (g)}}{3\ 442{,}5}$ ✓SF $= 3\ 442{,}5\ \text{cm}^3 \times 0{,}8521\ \text{g/cm}^3$ ✓MCA $= 2\ 933{,}35425$ $\approx 2\ 950\ \text{g}$ ✓R	1SF substitution 1MCA multiplication 1R mass in grams (3)	M L2
5.2.4	Beautifying the product ✓✓A **OR** Eliminate rust on stainless steel ✓✓A	2A explanation (2)	M L4
5.3.1	Speed $= \frac{\text{Distance}}{\text{Time}}$ 75 km/h $= \frac{127\ \text{km}}{\text{Time}}$ ✓SF Time $= \frac{127}{75}$ ✓M $= 1{,}6933\ldots$ hours ✓CA $= 0{,}6933\ldots \times 60$ ✓C $= 41{,}6$ minutes Time = 1 hour 42 minutes ✓S	1SF substitution 1M changing subject of formula 1CA time in hours 1C converting time 1S time in hours and minutes (5)	MP L3
5.3.2	Probability $= \frac{1}{2}$ ✓A ✓A	1A numerator 1A denominator (2)	P L2
			[35]
		TOTAL:	**[150]**