



MATHEMATICAL LITERACY
GRADE 12
TERM 2 ASSIGNMENT 2026
TOTAL: 50 MARKS
DURATION: 1 HOUR

INSTRUCTIONS AND INFORMATION:

- This assignment will assess you on the topics of Measurement, Maps, Plans and other representations of the Physical world and Finance.
- The assignment consists of THREE questions, Answer all the questions.
- Show all your calculations.
- Write neatly and legibly.
- Indicate the units of measurements, where necessary.
- Round off all the answers according to the given context, unless otherwise stated.

This question paper consists of 5 pages.

- 1.1. A sports science team is conducting a health assessment of athletes preparing for a regional competition. As part of the screening process, the team measures each athlete's height and mass to determine their Body Mass Index (BMI), which is used to evaluate whether their body weight is within a healthy range.

The table below shows the measurements of four athletes:

Athlete	Height (cm)	Mass (kg)
A	168	62
B	175	78
C	182	95
D	160	52

- 1.1.1. Convert the height of each athlete to metres. (4)

- 1.1.2. Calculate the BMI of each athlete using the formula below. (5)

$$\text{BMI} = \frac{\text{mass (kg)}}{(\text{height (m)})^2}$$

- 1.1.3. Refer to the BMI categories chart provided below to classify the BMI of Athlete C according to the given categories. (2)

BMI Categories for Adults

Underweight (<18.5)

Normal (18.5–24.9)

Overweight (25.0–29.9)

Obese (≥30.0)

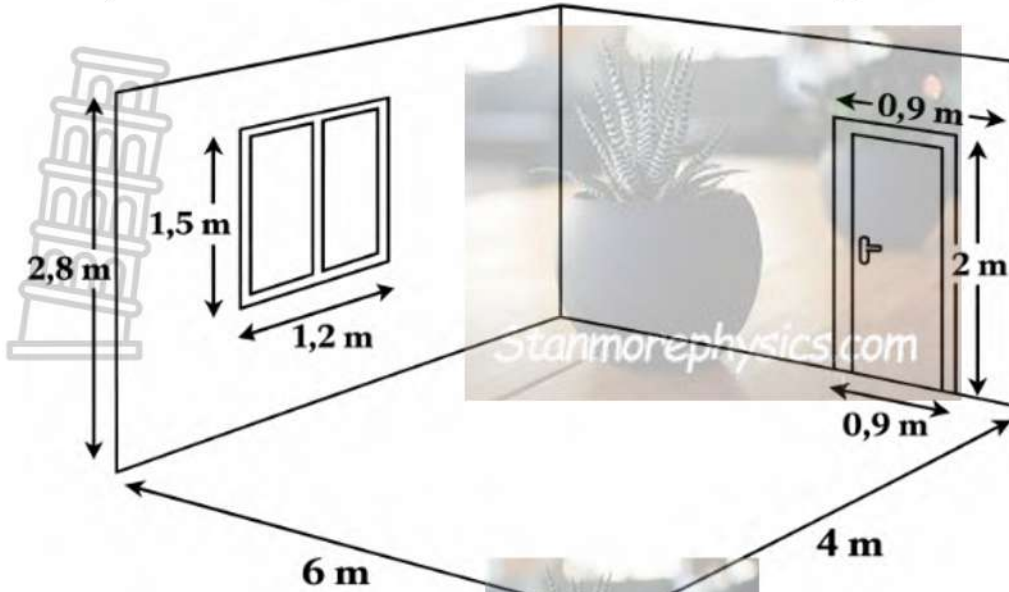
- 1.1.4. The sports science team wants to provide additional health support to athletes who may be at risk. (3)

Based on your BMI calculations in Question 1.1.2 and the BMI categories in Question 1.1.3, Identify TWO athletes who may require further health advice. Provide ONE reason for the selected athletes.

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QUESTION 2

The layout and dimensions of the bedroom are shown in the diagram below.



Source: Pinterest <https://share.google/OrwEdCQ0J6Ijt5eOD>

The bedroom has:

- Four walls of equal height
- One rectangular window
- One rectangular door

Additional Important Information:

- Thabiso will paint the walls only
- The floor and ceiling will not be painted
- The window and door must also not be painted.

Openings on the walls:

- Window:
Width = 1,2 m
Height = 1,5 m

- Door:
Width = 0,9 m
Height = 2,1 m

Thabiso buys paint where:

- 1 litre of paint covers 9 m²
- Paint is sold in 5-litre cans only
- Each 5-litre can cost R265,00

Use the information above to answer the questions that follow:

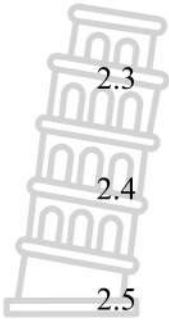
- 2.1 Calculate the total combined area of the door and the window. (5)
You may use:

$$\text{Area of a rectangle} = \text{height} \times \text{width}$$

2.2 Calculate the area of the walls that need to be painted. (6)

You may use:

$$\text{Area to be painted} = \text{Total area of the walls} - \text{Area of the door and window}$$



2.3 Thabiso needs double coat of paint for the entire room. Calculate the number of litres of paint required to paint the walls. (4)

2.4 Determine the minimum number of 5-litre paint cans Thabiso must buy to paint the walls of the room. (3)

2.5 Calculate the total cost of the paint needed to paint the walls of the room. (2)

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QUESTION 3

3.1 The Johnson family plans to travel by car from the town of Greenville to the town of Harrison to visit relatives. Before starting their journey, they study a road map to help them plan the route and estimate the travelling time.

The map below shows the route that the family follows from Greenville to Harrison using a main highway.



Source: <https://share.google/pgf6X09JdJ8XLx4EB>

Along the route, the family passes through a small town called Reston, where they may stop for a short break.

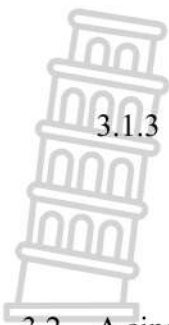
INFORMATION

- Distance from Greenville to Harrison: 126 miles
- Formula to be used where applicable: $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$

3.1.1 The family took 2 hours and 40 minutes to travel from Greenville to Harrison. (5)

Calculate the average speed, to the nearest mile per hour (mph), of the family during the trip.

Show ALL calculations.



the family left Green Hill at 11:15 in the morning. (3)

Using the time from QUESTION 3.1.1, calculate the time at which the family arrived in Harrison.

Show all working and give your final answer in hours and minutes.

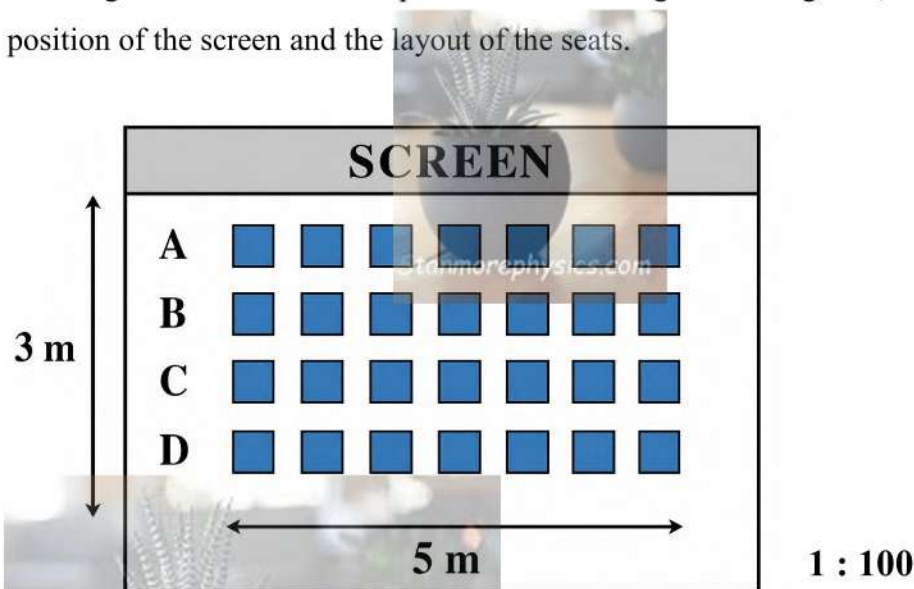
3.1.3 Explain why the **actual travel time** of a journey is often longer than the **calculated time** using a map and speed alone. (4)

Give TWO reasons.

3.2 A cinema manager is planning a seating layout for a cinema hall in a shopping centre.

Before approving it, the manager uses a diagram of the seating area to check measurements and seat arrangement.

The diagram below shows a top view of the rectangular seating area, including the position of the screen and the layout of the seats.



Source: ResearchGate <https://share.google/99GewOD9nwCeIRIRL>

Study the information above and use it to answer the questions that follow:

3.2.1 The manager draws a plan of the seating area using a scale of 1 : 100. (2)

Explain what the scale 1 : 100 means in this context.

3.2.2 Each seat in the cinema is square-shaped and measures **0,5 m** × **0,5 m** in real life. (5)

Using a scale of 1:100, draw a scaled diagram of ONE seat.

3.2.3 Explain why working with scale drawings is important when planning the layout of buildings such as cinemas or shopping centres. (2)


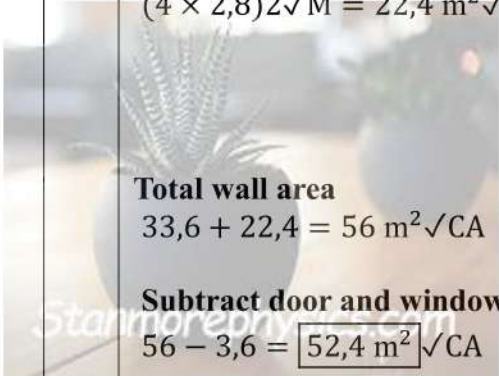
Give ONE reason.

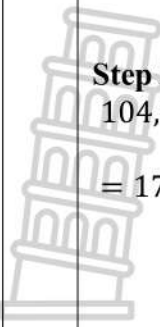


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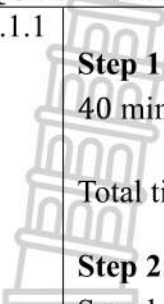

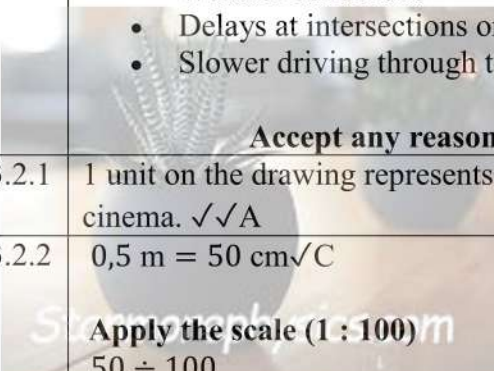
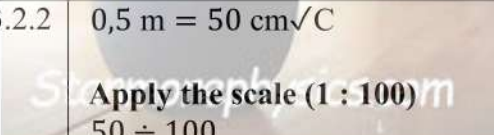
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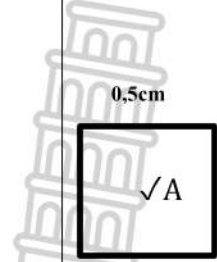
2026 TERM 2 ASSIGNMENT MARKING GUIDELINE

QUESTION 1			14 marks	
1.1.1	<p>A $168 = 1,68\text{m} \checkmark$ A</p> <p>B $175 = 1,75\text{m} \checkmark$ A</p> <p>C $182 = 1,82\text{m} \checkmark$ A</p> <p>D $160 = 1,60\text{m} \checkmark$ A</p>	<p>1A Conversion</p> <p>1A Conversion</p> <p>1A Conversion</p> <p>1A Conversion</p> <p>(4)</p>	TL1	
1.1.2	<p>A $62 \div (1,68)^2 \checkmark \text{SF} = 21,97 \text{ kg/m}^2 \checkmark \text{A}$</p> <p>B $78 \div (1,75)^2 = 25,48 \text{ kg/m}^2 \checkmark \text{A}$</p> <p>C $95 \div (1,82)^2 = 28,68 \text{ kg/m}^2 \checkmark \text{A}$</p> <p>D $52 \div (1,60)^2 = 20,31 \text{ kg/m}^2 \checkmark \text{A}$</p>	<p>1SF Correct substitution</p> <p>1A Answer</p> <p>1A Answer</p> <p>1A Answer</p> <p>1A Answer</p> <p>(5)</p>	TL2	
1.1.3	<p>BMI of Athlete C = $28,7 \text{ kg/m}^2$</p> <p>\therefore Overweight $\checkmark \checkmark \text{A}$</p>	<p>CA from Q1.1.2</p> <p>2A Answer</p> <p>(2)</p>	TL2	
1.1.4	<p>B $\checkmark \text{A}$</p> <p>C $\checkmark \text{A}$</p> <p>Overweight $\checkmark \text{O}$</p> <p>BMI above normal range</p>	<p>CA from Q1.1.2</p> <p>1A Correct athlete</p> <p>1A Correct athlete</p> <p>1O Opinion</p> <p>(3)</p>	TL4	
			[14]	

QUESTION 2		15 marks	
2.1	<p>Window $\text{Area} = 1,2 \times 1,5 \sqrt{\text{SF}} = 1,8 \text{ m}^2 \sqrt{\text{CA}}$</p> <p>Door $\text{Area} = 0,9 \times 2 = 1,8 \text{ m}^2 \sqrt{\text{CA}}$</p> <p>Combined area $1,8 + 1,8 \sqrt{\text{MCA}} = \boxed{3,6 \text{ m}^2} \sqrt{\text{CA}}$</p> 	<p>1SF Correct substitution 1CA Answer</p> <p>1CA Answer</p> <p>1MCA Adding the areas 1CA Answer (5)</p>	TL2
2.2	<p>Two longer walls $(6 \times 2,8) 2 \sqrt{\text{M}} = 33,6 \text{ m}^2 \sqrt{\text{CA}}$</p> <p>Two shorter walls $(4 \times 2,8) 2 \sqrt{\text{M}} = 22,4 \text{ m}^2 \sqrt{\text{CA}}$</p> <p>Total wall area $33,6 + 22,4 = 56 \text{ m}^2 \sqrt{\text{CA}}$</p> <p>Subtract door and window $56 - 3,6 = \boxed{52,4 \text{ m}^2} \sqrt{\text{CA}}$</p> 	<p>CA from Q2.1</p> <p>1M Multiplying area by 2 1CA Answer</p> <p>1M Multiplying area by 2 1CA Answer</p> <p>1CA Answer after adding</p> <p>1CA Answer After subtracting (6)</p>	TL3
2.3	<p>1 litre of paint covers 6 m²</p> <p>Step 1: Double coat area $52,4 \times 2 \sqrt{\text{MCA}} = 104,8 \text{ m}^2 \sqrt{\text{CA}}$</p>	<p>CA from Q2.2</p> <p>1MCA for doubling the area 1CA Answer</p>	TL2

	 <p>Step 2: Calculate litres needed $104,8 \div 6 \checkmark \text{MCA}$ $= 17,47 \text{ litres} \checkmark \text{CA}$</p>	<p>1MCA for dividing by 6</p> <p>1CA Answer (4)</p>	
2.4	<p>$17,47 \div 5 \checkmark \text{MCA}$ $= 3,494 \text{ cans} \checkmark \text{CA}$ $\approx 4 \text{ cans} \checkmark \text{R}$</p>  <p>Stanmorephysics.com</p>	<p>CA from Q2.3</p> <p>1MCA for dividing by 5</p> <p>1CA Answer</p> <p>1R Rounding up (3)</p>	TL2
2.5	 <p>Cost of one 5-litre can = R320</p> <p>$4 \times 320 \checkmark \text{MCA}$ $= R1\,280 \checkmark \text{CA}$</p> <p>Stanmorephysics.com</p>	<p>CA from Q2.4</p> <p>1MCA for multiplying by R320</p> <p>1CA Answer (2)</p>	TL2
			[15]

QUESTION 3		21 marks	
3.1.1	<p>Step 1: Convert time to hours $40 \text{ minutes} = \frac{40}{60} = 0,67 \text{ hours} \checkmark C$</p> <p>Total time = $2 + 0,67 = 2,67 \text{ hours} \checkmark A$</p> <p>Step 2: Use the formula $\text{Speed} = \frac{126}{2,67} \checkmark SF$</p> <p>$= 47,19 \text{ m/h} \checkmark CA$</p> <p>$\approx 47 \text{ m/h} \checkmark R$</p> 	<p>1C Conversion</p> <p>1A Answer in hours</p> <p>1SF Correct substitution</p> <p>1CA Answer</p> <p>1R Rounding</p> <p>(5)</p>	TL3
3.1.2	<p>$09:15 + 2 \text{ hours} \checkmark MA + 40 \text{ minutes} \checkmark MA$ $= 11:15 \checkmark A$</p> 	<p>2MA Adding the 2h40min</p> <p>1A Answer</p> <p>AO</p> <p>(3)</p>	TL1
3.1.3	<ul style="list-style-type: none"> Stopping for breaks (e.g. rest stops, meals, fuel) increases travel time. $\checkmark \checkmark O$ Traffic congestion, roadworks, accidents or speed limits reduce driving speed. $\checkmark \checkmark O$ <p>OR</p> <ul style="list-style-type: none"> Weather conditions Delays at intersections or traffic lights Slower driving through towns <p>Accept any reasonable answer</p> 	<p>2O Reasoning</p> <p>2O Reasoning</p> <p>(4)</p>	TL4
3.2.1	<p>1 unit on the drawing represents 100 units in the actual cinema. $\checkmark \checkmark A$</p>	<p>2A Explanation</p> <p>(2)</p>	TL1
3.2.2	<p>$0,5 \text{ m} = 50 \text{ cm} \checkmark C$</p> <p>Apply the scale (1 : 100) $50 \div 100$ $= 0,5 \text{ cm} \checkmark A$</p> <p>Scaled dimensions: $0,5 \text{ cm} \times 0,5 \text{ cm}$</p> 	<p>1C Conversion</p> <p>1A Answer</p>	TL3

	 <ul style="list-style-type: none"> • A neat square • Each side measures 0,5 cm • Diagram drawn using a ruler (Teacher must measure) • Labelled 	<p>1A Correct shape 1CA Labelling 1CA Correct measurement</p> <p>(5)</p>	
<p>3.2.3</p>	<p>Scale drawings help planners see whether everything will fit correctly in the available space before construction begins. ✓✓O</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • They help prevent costly building mistakes • They allow accurate planning of seating and walkways • They help measure distances and spacing correctly <p style="text-align: center;">Accept any reasonable answer</p>	<p>2O Explanation</p> <p>(2)</p>	<p>TL4</p>
			<p>[21]</p>