



education

Department of
Education
FREE STATE PROVINCE

Assignment 1



GRADE 12

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MATHEMATICAL LITERACY



May 2025

Stanmorephysics.com

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MARKS: 50

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TIME: 1 HOUR

This question paper consists of 8 pages.

INSTRUCTIONS AND INFORMATION

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



QUESTION 1

1.1

Prudence Sekgodiso is a South African female athlete who logged an impressive world lead time of 1 minute and 57,26 seconds in the women's 800m run in 2024 Marrakesh Diamond League. She is 157 cm tall and weighs 44kg. At the night of the final, the temperature in Marrakesh was 20°C.



[Adapted from www.worldathletics.org]

Use the information above to answer the questions that follow

- 1.1.1 Identify the unit used for BMI. (2)
- A Kg/m
- B Kg/m²
- C Kg/cm²
- 1.1.2 Write the acronym BMI in full. (2)
- 1.1.3 Choose which of the following imperial units is equivalent to centimetres. (2)
- A Inches
- B Feet
- 1.1.4 Convert the temperature of Marrakesh to Fahrenheit (°F). Round your answer off to the nearest ten degrees. (3)
- You may use the following formula: °F= (1.8 x °C) + 32
- 1.1.5 Express Sekgodisos' finishing time to the nearest minute. (3)

- 1.2 Gamazine is a granular plaster used as a decorative for interior or exterior wall and ceiling coat. Every 20 litre covers $7m^2$ to $8m^2$ and its mixing ratio to water is 3:1.



[Adapted from www.topt.co.za]

Use the information above to answer the following questions:

- 1.2.1 Identify the minimum spread rate area of 20 litres of Gamazine. (2)
- 1.2.2 Convert 20 litres to millilitres. (2)
- 1.2.3 If you have 6 litres of Gamazine, how much water do you need to mix with it? (2)

[18]

QUESTION 2

Two adventure enthusiasts, Semahla and Pearl, are a young couple from Bloemfontein who plans to visit Cape Town during winter holidays. The trip, from Bloemfontein to Cape Town is 1010 km long. On their way, they will stop and spend the night at Carnarvon town which is 527 km away from Bloemfontein. They will depart from Bloemfontein at 12:00 in the afternoon driving at 100km/h. The petrol consumption of the car they will travel in averages 7 litres per 100km (7ℓ/100km) with a tank capacity of 51 litres.



[Adapted from www.karoospace.co.za]

Use the information above to answer the questions that follow.

- 2.1. Calculate the time in hours and minutes from Bloemfontein to Carnarvon.

You may use the following formula: $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$ (5)

- 2.2 Determine at what time will they arrive in Carnarvon, if they had two (2) stops, 20 minutes each, on their way from Bloemfontein. (4)



Semahla stated that if they fill a full tank of petrol in Bloemfontein, they will arrive in Carnarvon and still travel a further 200km before the tank runs empty.

Verify, with calculations, whether his statement is valid. (6)

Determine the cost difference between pouring a full tank of petrol in Bloemfontein (inland) and Cape Town (coastal) in a car with a capacity of 51ℓ.

	Prices
Inland	R23,26
Coastal	R22,47

(5)

[20]



QUESTION 3

Water scarcity continues to be a deepening problem in South Africa. Taps running dry have become a part of our daily living. To mitigate this reality, a lot of families have installed JoJo tanks in their homes to harvest and preserve rainfall water and use that for irrigation and other household purposes. Below is the picture and different sections of the JoJo tank and dimensions thereof.



Volume: 2 400 Litres
Diameter of the Tank: 1 420 mm
 $\pi = 3,142$

Note: $1\ell = 1000\text{ cm}^3$

[Adapted from www.jojo.co.za]

Use the information above to answer the questions that follow.

3.1 Explain the difference between volume and capacity?

(2)



3.2 Determine the radius of the tank in *mm*. (2)

3.3 Hence, calculate the height of the tank in cm.

You may use the following formula: $V = \pi r^2 h$ (5)

3.4 On average, it takes at least 342,80 litres to irrigate a certain backyard garden. How many turns will it take to empty a full JoJo tank? (3)
[12]

TOTAL: [50]





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ASSESSMENT TASK

GRADE 12

MATHEMATICAL LITERACY /
WISKUNDIGE GELETERDHEID

Assignment 2025

MARKING GUIDELINES/NASIENRIGLYNE

Stanmorephysics.com
MARKS/PUNTE: 50

SYMBOL/KODE	EXPLANATION/VERDUIDELIKING
M	Method/Metode
MA	Method with accuracy/Metode met akkuraatheid
CA	Consistent accuracy/Volgehoue akkuraatheid
A	Accuracy/Akkuraatheid
C	Conversion/Herleiding
S	Simplification/Vereenvoudiging
RT	Reading from a table/graph/map/diagram/Lees vanaf tabel/kaart/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./Penalising, bv. vir geen eenhede/verkeerde afronding, ens.
R	Rounding off/Afronding
NPR	No penalty for rounding/Geen penalising vir afronding nie
AO	Answer only/Slegs antwoord
MCA	Method with constant accuracy/Metode met volgehoue akkuraatheid

These marking guidelines consist of 5 pages.
Hierdie nasienriglyne bestaan uit 5 bl

NOTE:

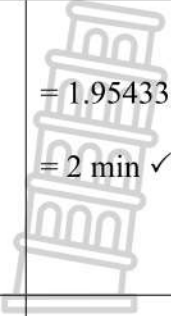

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it 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

LET WEL:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, merk die doodgetrekte (gekanselleerde) poging.*
- *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 merkbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.*

QUESTION 1[18 MARKS]			
ITEM	Solution	Explanation	T/L
1.1.1	B ✓✓ A	2A correct answer (2)	M L1 E
1.1.2	Body Mass Index ✓✓ A	2A correct definition (2)	M L1 E
1.1.3	A ✓✓ A	2A correct answer (2)	M L1 E
1.1.4	$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$ $= (1.8 \times 20^{\circ}) + 32 \checkmark \text{SF}$ $= 68^{\circ} \checkmark$ $\approx 70^{\circ}\text{F} \checkmark$	1SF correct substitution 1CA Answer 1R correct rounding (3)	M L2 M
1.1.5	$1 \text{ min} + \left(\frac{57.26}{60}\right) \checkmark \text{ C}$ $= 1 \text{ min} + 0.9543333333 \text{ min}$	1 C correct conversion	M L2 M

	 <p> $= 1.9543333333 \text{ min} \checkmark \text{ A}$ $= 2 \text{ min} \checkmark \text{ R}$ </p>	<p>1 A simplification 1 R correct rounding</p> <p>(3)</p>	
1.2.1	<p>$7\text{m}^2 \checkmark \checkmark \text{ A}$</p>	<p>2A correct answer</p> <p>(2)</p>	<p>M L1 E</p>
1.2.2	<p> $= 20 \text{ l} \times 1000 \checkmark \text{ C}$ $= 20\,000 \text{ ml} \checkmark \text{ A}$ </p>	<p>1C conversion 1A answer</p> <p>(2)</p>	<p>M L1 E</p>
1.2.3	<p>$2 \text{ l} \checkmark \checkmark \text{ A}$</p> 	<p>2A correct answer</p> <p>(2)</p>	<p>M L1 E</p>

	<p>Coastal</p> $51 \ell \times R22.47$ $= R1\,145,97 \checkmark \text{ CA}$ <p>Difference = $R1186.26 - R1145.97 \checkmark \text{ MCA}$</p> $= R40.31 \checkmark \text{ CA}$	<p>1CA correct answer</p> <p>1MCA subtracting correct values</p> <p>1CA correct answer</p>	<p>(5)</p>
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QUESTION 3 [12 MARKS]			
ITEMS	Solution	Explanation	T
3.1	<p>Volume: the three-dimensional space occupied by a gas, a liquid, or a solid substance. ✓ A</p> <p>Capacity: the ability of a three-dimensional space to be occupied by a gas, a liquid, or a solid substance. ✓ A</p>	<p>1A correct volume explanation</p> <p>1A correct capacity explanation</p> <p>(2)</p>	M L1 E
3.2	$r = \frac{1}{2}D$ $= \frac{1}{2}(1420\text{mm}) \checkmark \text{ SF}$ $= 710\text{mm} \checkmark \text{ A}$	<p>1SF correct substitution</p> <p>1A correct Answer</p> <p>(2)</p>	M L2 E
3.3	$2400\ell \times 1000 = 2400000\text{cm}^3 \checkmark \text{ A}$ $\text{Radius} = \frac{710\text{mm}}{10} = 71\text{cm} \checkmark \text{ A}$ $V = \pi r^2 h$ $2400000 = 3,142 \times (71)^2 \times \text{height} \checkmark \text{ MA}$ $h = \frac{2400000\text{cm}^3}{(3.142)(71\text{cm})^2} \checkmark \text{ SF}$ $= 151.52642033606\text{cm} \checkmark \text{ CA}$	<p>1C conversion</p> <p>1A correct radius</p> <p>1MA changing the subject</p> <p>1SF correct substitution</p> <p>1 CA correct answer</p> <p>(5)</p>	M L4 D
3.4	$\frac{2400\ell}{342.80\ell} \checkmark \text{ MA}$ $= 7.00116686114 \checkmark \text{ CA}$ <p>≈ 7 turns to empty the tank. ✓ R</p>	<p>1MA dividing correct values</p> <p>1CA correct answer</p> <p>1R correct rounding</p> <p>(3)</p>	M L2 D
		TOTAL	[50]