LIMPOPO

PROVINCIAL GOVERNMENT

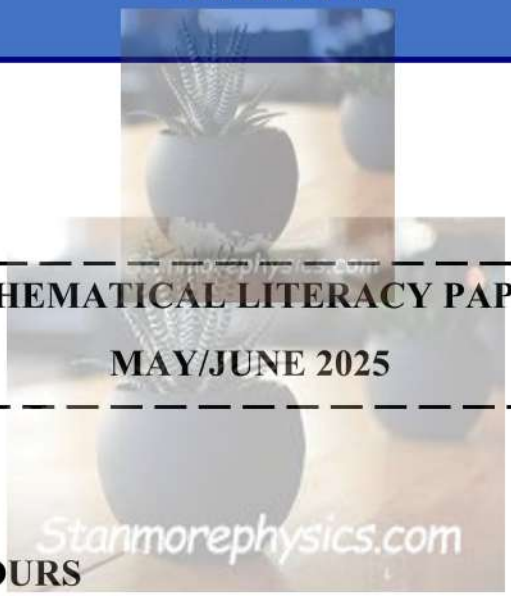
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF

EDUCATION

[redacted]

GRADE 12



MATHEMATICAL LITERACY PAPER 1

MAY/JUNE 2025

MARKS : 100

TIME : 2 HOURS

This question paper consists of 9 pages

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Number the questions 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 the final answers appropriately according to the context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT necessary drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

QUESTION 1

1.1

The table below shows petrol and diesel cuts from October 2023 to October 2024 in South Africa. This price cut came into effect on Wednesday, 02/10/2024 at 23:59.

Month	October 2023	October 2024 (Expected)	Change (R/litre)
Petrol 93	R25.22	R20.74	- R4.48
Petrol 95	R25.68	R21.06	-R4.62
Diesel 0.05%	R25.02	R18.48	-R6.54
Diesel 0.005%	R25.22	R18.59	-R6.63

[Adapted from Businesstech]

Use the information from the table above to answer the questions that follow:

1.1.1 Determine the price of Diesel 0.005% in October 2023. (2)

1.1.2 The probability of a vehicle to use fuel type of diesel 0.05% is $\frac{1}{4}$.

Express the probability as a percentage (2)

1.1.3 Calculate the difference in the prices of diesel types in October 2024. (2)

1.1.4 Arrange the change in prices (R/litre) amounts in ascending order. (2)

1.1.5 Write down the fuel type which was most expensive in October 2024 (2)

1.1.6 The price of fuel type is a (discrete/continuous) data (2)

1.2

Lethabo intends studying for a Postgraduate Certificate in Education in Senior Phase and Further Education and Training (NQF 7) at College. He finds the following abridged payment plan for his first year of online tuition. Registration fee is part of full year tuition fee.

Payment plan: Centurion, Krugersdorp, Bellville and Durban campuses

First time enrolling students	Registration	Full year tuition fee	Number of payments	Due date
Upfront payment (A)	R1 980	R38 780	1	End of February 2025
Monthly payment (B)	R1 980	R42 160	10	February to November 2025

[Adapted from google]

NB. Prices quoted above are for tuition fees only and DO NOT include the cost of studying materials

Use the information from the table above to answer the questions that follow:

1.2.1 List all the campuses that use the above payment plan. (4)

1.2.2 Calculate the amount Thabo will pay per month, if he pays the tuition fee over ten months (3)

1.2.3 When must payment Plan A be fully paid to enjoy the special concession? (2)

[21]

QUESTION 2

2.1

Linda needs to purchase a new laptop bundle to be able to do her work in the field. She finds the following advertisement online.

HP Laptop 15 15.6" FHD
Intel^{R} Core^{TM} i7 – 1255u 16GB
RAM 512 GB SSD Warm Gold

Option 1 Cash Price: R15 999 (Including VAT) NB: VAT is calculated at 15%

Option 2 Hire-purchase:

Deposit 10% of the cash price

Monthly instalments: R656,30 × 36 months

[Adapted from google]

Use the above information to answer the questions that follow.

2.1.1 Determine the number of years it would take Linda to pay off this laptop, if she chooses the hire-purchase option. (2)

2.1.2 Write down the acronym "VAT" in full. (2)

2.1.3 Calculate the amount of VAT paid if Linda purchased this laptop using Option 1. (3)

2.1.4 Calculate the total cost of buying this laptop bundle on the hire-purchase option. (5)

2.1.5 Linda claims that the amount of interest charged if this laptop bundle is purchased on hire-purchase option is exactly R 9 270,70. Verify by calculations, whether her claim is correct or not. (4)

2.1.6 Mention two disadvantages of buying on hire-purchase option. (4)

2.2.

Mr Mudau lives in Kagiso township under Rand West City municipality. He and his family buy electricity at Rand West City Municipality for home use. He bought 400kWh electricity for February 2023.

NB: 2022/23 (March 2022 to February 2023) and 2023/24 (March 2023 to February 2024)

TABLE 1: DOMESTIC CONSUMERS WITH PRE-PAID ELECTRICITY METERS

Tariffs blocks (in KWh)	**Approved tariffs (c/kWh) 2022/23**	**Proposed tariffs (c/kWh) 2023/24**
Block 1 (0 – 50) kWh	135,72	156,21
Block 2 (51 – 350) kWh	173,97	200,24
Block 3 (351 – 600) kWh	243,84	280,66
Block 4 (more than 600 kWh	284,47	327,43
Basic Charge (R/Month)	86,91	100,03

***Basic Charge is per connection**

[Adapted from Rand West City Municipality tariffs]

Use the information and table above to answer the questions that follow.

2.2.1 Calculate the total charge (in Rands) of electricity used by Mr Mudau's family in February 2023. (4)

You may use the formula:

Total charge = Basic charge + (No. of units used per block × charge per unit)

2.2.2 Mulalo claims that Mr Mudau would buy less than 90% of the units of electricity used for February 2023 from the same amount used then, in February 2024. Verify, by calculations, whether his claim is valid or not. (7)

2.3. Mandla's mother works in the USA and send him the allowance of R 10 000 in US dollars

Currency	Per South African rand (ZAR)	To South African rand (ZAR)
US dollar ($)	0,053	18,65
European euro (€)	0,051	19,52

Use the table above to calculate the amount Mandla gets as an allowance in US dollars. (2)

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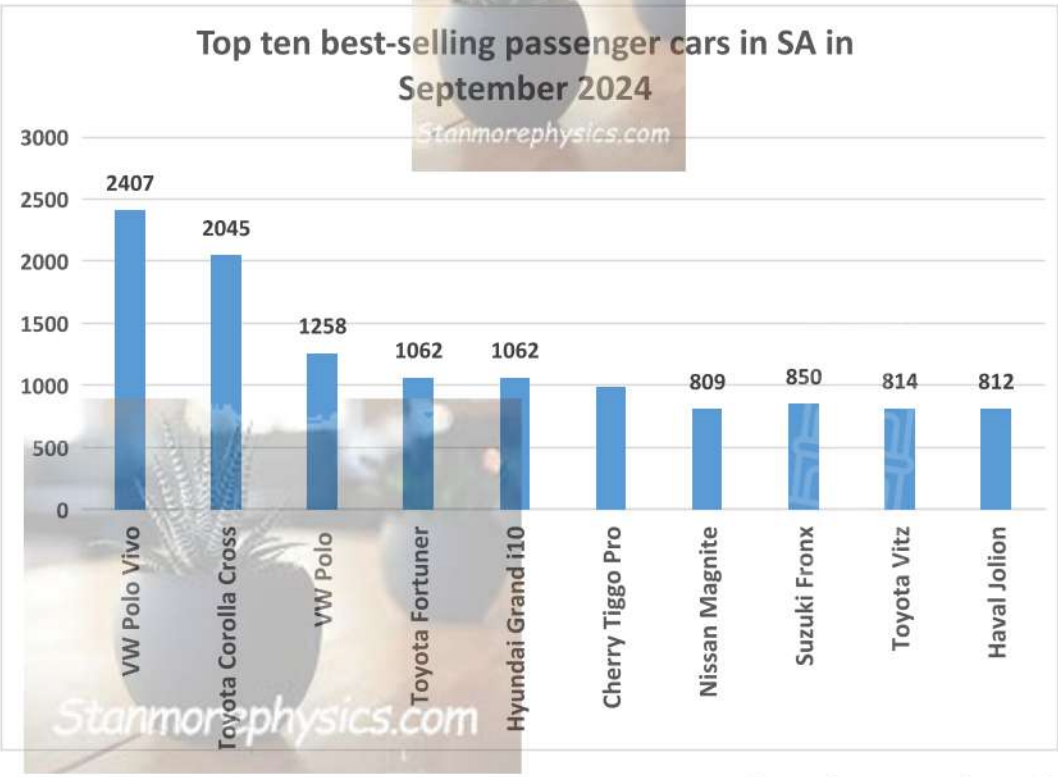
QUESTION 3

3.1 Lesedi wants to buy a car that he can afford to use as he goes to work. He works in Polokwane at Old Mutual bank as a financial advisor. He lives in Lebowakgomo, which is 55 km from Polokwane. He visited a website selling cars in order to make an informed decision on the car that he might buy.

The information is shown on a bar graph for top ten best-selling passenger cars in South Africa in September 2024.



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Use the information above to answer the questions that follow.

3.1.1. Determine the modal number of vehicle units sold. (2)

3.1.2 Calculate the range of vehicle units sold. (2)

3.1.3 If the mean for the vehicle units sold is 1210,9, use calculations to find the missing value for Cherry Tiggo Pro model units. (4)

3.1.4 Hence, calculate the median number of vehicle units sold. (4)

3.1.5 Determine the probability, as a percentage, of buying a VW Polo Vivo in September 2024. (3)

3.2

Rhulani who works at a car dealership in Midrand wanted to research on the province that sold the most car units in November and December 2024. This would help the dealership to know which province would be provided with the most vehicles in 2025

The table below shows number of passenger vehicles sales for November and December 2024.

Province	November 2024	December 2024	Total sales up to December 2024
Eastern Cape	1 129	**P**	12 017
Free State	657	640	7 002
Gauteng	10 412	10 983	114 822
Kwazulu Natal	3 795	3 985	41 912
Limpopo	963	971	9 447
Mpumalanga	1 228	1 267	13 071
North West	742	753	8 681
Northern Cape	281	256	2 939
Western Cape	3 577	3 334	37 848
Total	**22 784**	**23 415**	**247 739**

NB: Total sales column is from January to December 2024, where January to October 2024 vehicles sales were not shown for each province in the table

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Use the table above to answer the questions that follow.

3.2.1 Calculate the total number of passenger vehicles sold in the North West Province during November 2024 and December 2024 . (2)

3.2.2 Determine the value of **P**, the number of cars sold in December 2024 in the Eastern Cape. (3)

3.2.3 If the interquartile range (IQR) for number of passenger cars sold in December 2024 is 2 963 and the first quartile (Q_1) is 697, then determine the third quartile (Q_3) of passenger cars sold.

You may use the formula: $\mathbf{IQR} = \mathbf{Q_3 - Q_1}$ (4)

3.2.4 Write down the total number of vehicle sales in November 2024 as a ratio to the total number of vehicle sales up to December 2024.

Write answer as a unit ratio in the form **1:** _____ (3)

[27]

QUESTION 4

4.1.

Pravin saved for his retirement by contributing to a pension fund since he started working in January 1985. He retired at the end of December 2021. He decides to take one-third of his pension fund as a lump sum and invest the balance in an *annuity. His lump sum amounted to R1 500 000 before tax.

***An annuity is a financial product that pays you a regular income after retirement.**

Use the information above to answer the questions that follow.

4.1.1 Determine the number of years Pravin had worked? (2)

4.1.2 Calculate Pravin's total pension fund amount. (2)

4.1.3 Pravin's lump sum benefit amount is taxable according to the following tax table.

Retirement lump sum benefit tax table.

2021 tax year (1 March 2020 – 28 February 2021)	
Taxable income (R)	Rate of tax (R)
1–500 000	0%
500 001–700 000	18% of taxable income above 500 000
700 001–1 050 000	36 000 + 27% of taxable income above 700 000
1 050 001 and above	130 500 + 35% of taxable income above 1 050 000

Pravin calculated that his lump sum benefit after tax would be R1 147 000.

Show, by calculations, whether he was correct or not. (6)

4.2

Pravin invested R 550 000 of his lump sum benefit into an ABC bank that offered an interest rate of 6,75% p.a. compounded annually in January 2023 and 7,5% p.a compounded annually in 2024. He would only withdraw his investment in January 2025.

Use the information from above to answer the questions that follow:

4.2.1 Determine percentage increase in interest rate from 2024 to 2025. (3)

4.2.2 Calculate the total amount of money that Pravin would get in Jan/2025. (6)

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[TOTAL MARKS: 100]

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NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

MIDYEAR EXAMINATION

CORRECTED MARKING GUIDELINE

MAY/JUNE 2025

MARKS: 100

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT	Reading from a table/graph/document/diagram
SF	Correct substitution in a formula
O	Opinion/Explanation
J	Justification
P	Penalty e.g. for no units, incorrect rounding off etc
R	Rounding off
NPR/NPU	No penalty for rounding/No penalty for units
AO	Answer only
MCA	Method with consistent accuracy

This marking guideline consists of 8 pages

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt
- If a candidate has crossed out (cancelled) an attempt to question and NOT redone 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 present any extra solution, when reading from a graph, table, layout plan or map, then penalise for any every extra item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake, s/he loses one mark.
- A conclusion mark can only be given/awarded if relevant calculations precedes it.

QUESTION 1		**Answer Only Full Marks**	
Quest.	**Solution**	**Explanation**	**Level**
1.1.1.	R 25,22 ✓✓ RT	2RT correct values (2)	**L1 DH**
1.1.2.	$= \frac{1}{4} \times 100\%$ ✓ **M** **= 25%**✓ A	1M concept of percentage 1A answer (2)	**L1 P**
1.1.3.	Difference = R18,59 – R 18,48 ✓ M = R 0,11 or 11c ✓ A	1M subtracting correct values 1A answer (2)	**L1 DH**
1.1.4.	-R6.63; -R6.54; -R4.62; -R4.48 ✓**RT** ✓M	1RT all correct values 1M correct order (2)	**L1 DH**
1.1.5.	Continuous ✓✓A	2A answer (2)	**L1 DH**
1.1.6.	Petrol 95 ✓✓RT	2RT correct fuel type (2)	**L1 DH**
1.2.1.	Centurion ✓**A** Durban, ✓**A** Krugersdorp ✓ **A** Bellville ✓ A	4A answers (4)	**L1 F**

1.2.2.	Monthly payment = $\frac{\text{R 42 160} - \text{R1 980}}{10}$ ✓**MA** $= \frac{\text{R40 180}}{10}$ ✓ **M** = R 4 018 ✓	1MA subtracting correct values 1M dividing by 10 1A answer (3)	**L1** **F**
1.2.3.	End of February 2025 OR 28-02-2025✓✓ **RT**	2RT correct date (2)	**L1** **F**
		[21]	

QUESTION 2

Quest.	Solution	Explanation	Level
2.1.1.	Number of years = $\frac{36}{12}$ ✓ M = 3 years ✓ **A**	1M dividing by 12 1A number of years **AO** (2)	**L1** **F**
2.1.2.	Value Added Tax ✓✓ A	2A answer (2)	**L1** **F**
2.1.3.	Price excluding VAT = $\frac{\text{R 15 999}}{1{,}15}$ ✓ **MA** = R 13 912,17 ✓ **S** VAT amount = R 15 999 − R 13 912,17 = R 2 086.83 ✓ **CA** **OR** Price excluding VAT = R 15 999 × $\frac{100}{115}$ ✓ **MA** = R 13 912,17 ✓ **S** VAT amount = R 15 999 − R 13 912,17 = R 2 086.83 ✓ **CA** OR	1MA dividing by 1,15 1S answer 1CA VAT amount OR 1MA multiplying by $\frac{100}{115}$ 1S answer 1CA VAT amount OR	**L2** **F**

	Price excluding VAT = $\frac{\text{R } 15\,999}{1{,}15}$ ✓ **MA** = R 13 912,17 ✓ **S** VAT amount = R 13 912,17 × 15% = R 2 086.83 ✓ **CA** OR VAT amount = $\frac{\text{R } 15\,999}{1{,}15}$ × 15% ✓ **MA** ✓ **M** = R 2 086.83 ✓**CA**	1MA dividing by 1,15 1S answer 1CA VAT amount OR 1MA dividing by 115% 1M multiplying by 15% 1CA VAT amount (3)	
2.1.4.	Deposit = R15 999 × 10% ✓ **M** = R1 599,90 ✓**A** Total costs = R656,30 × 36 + R1 599,90 ✓**RT**✓ **MCA** = R25 226,70 ✓ **CA**	1M multiplying by 10% 1A answer 1RT R656,30 × 36 1MCA adding R 1 599,90 1CA answer (5)	**L3** **F**
2.1.5.	Interest = R25 226,70 – R15 999 ✓✓ **M** = R 9 227,70 ✓ **CA** Her claim is NOT correct ✓ **O**	**CA from 2.1.4.** 2M subtracting correct values 1CA interest 1O conclusion (4)	**L4** **F**
2.1.6.	• Overall cost is higher ✓✓**O** • Assets depreciate in value over time ✓✓**O** • Ongoing fixed payments ✓✓**O** • Deposit is needed/paid ✓✓**O** • There is no ownership until final payment ✓✓**O** • Repossess the product for failing to pay as per agreement ✓✓**O** Any TWO	4O opinion (4)	**L4** **F**

2.2.1.	Total charge = R 86,92 + (50 × R 1,3572) ✓SF + (300 × R1,7397) + (50 × R2,4384) ✓SF✓C = R 798,60 ✓CA OR Total charge = R 86,91 + (50 × R 1,36) ✓SF + (300 × R 1,74) + (50 × R 2,44) ✓SF✓C = R 798,91✓ CA	2SF correct substitution 1C convert cents to rand 1CA answer OR 2SF (Penalty for early R) 1C convert cents to rand 1CA answer (4)	**L2** **F**
2.2.2.	Total charge = R 100,03 + (50 × R 1,5621) + (300 × R 2,0024) + (7 × R 2,8066) ✓ST = R 798,50✓ CA Total units = 50 + 300 + 7 ✓M = 357 ✓ CA Percentage $= \frac{357}{400} \times 100\%$ ✓M = 89,25% ✓CA The claim is **valid** ✓O OR	**CA from 2.2.1.** 1 ST correct substitution 1CA answer 1M adding units 1CA answer 1 M percentage concept 1CA percentage 1O conclusion OR	**L4** **F**

	Total charge ✓M = R 100,03 + (50 × R 1,5621) + (300 × R 2,0024) ✓M = R 778,86 ✓CA Block 3 = R 798,60 – R 778,86 = R 19,74 Units in Block 3 = $\frac{\text{R 19,74}}{\text{R2,8066}}$ = 7,0334212214 ≈ 7 Total units = 50 + 300 + 7 = 357 Percentage = $\frac{357}{400}$ × 100% ✓ = 89,25% ✓ The claim is **valid** ✓ OR 90% of 400kWh = $\frac{90}{100}$ × 400kWh✓✓ M = 360 kWh✓ CA Total charge = R100,03 + (50 × R 1,5621) + (300 × R 2,0024) + (10 × R 2,8066) ✓✓ST = R 806,92✓ CA The claim is **valid** ✓ O	2 M percentage concept 1CA answer 2 ST correct substitution 1CA answer 1O conclusion (7)	

Quest.	Solution	Explanation	Level
2.3.	= R10 000 × 0,053 ✓ **C** =$ 530 ✓ **A** **OR** $= \frac{R\,10\,000}{R\,18{,}65/1\$}$ ✓ **C** = $536,19 ✓ **A**	1C conversion 1A OR 1C conversion 1A (2)	**L2** **F**
		[33]	
QUESTION 3			
Quest.	**Solution**	**Explanation**	**Level**
3.1.1.	1062 ✓✓ **RT**	2RT correct mode (2)	**L1** **DH**
3.1.2.	Range = Highest value – Lowest value = 2407 – 809 ✓ M = 1598 ✓ **CA**	1M subtracting correct values 1CA correct range (2)	**L1** **DH**
3.1.3.	Mean = $\frac{2407+2045+1258+1062+1062+P+809+850+814+812}{10}$ ✓ **M** $1210{,}9 = \frac{(11\,119 + P)}{10}$ ✓ **A** $12109 = 11\,119 + P$ ✓ **S** P = 990 ✓ **CA**	1M mean concept 1A for 11 119 1S simplification 1CA answer (4)	**L3** **DH**
3.1.4.	809;812.814;850;990;1 062;1 062;1 258;2 045;2 407 ✓ **M** Median = $\frac{(990+1\,062)}{2}$ ✓ **RT** ✓ **M** = 1 026 ✓**CA**	**CA from 3.1.3.** 1M correct order 1RT adding correct values 1M median concept/dividing by 2 1 CA answer **AO** (4)	**L2** **DH**

3.1.5.	Probability = $\frac{2407}{12109} \times 100\%$ ✓✓ **A** = 19,87777686% = 19,88% ✓**CA**	1A numerator 1A denominator 1CA answer **NPR** (3)	**L2** **P**
3.2.1.	Total No. of passenger vehicles sold = 742 + 753 ✓ **M** = 1495✓ **CA**	1M adding correct numbers 1CA answer (2)	**L1** **DH**
3.2.2.	Cars sold in EC (P) = 23 415 – (640 + 10 983 + 3 985 + 971 + 1 267 + 753 + 256 + 3 334) ✓ **M** P = 23 415 – 22 189 ✓ **S** P = 1 226 ✓ **CA**	1M subtracting correct values 1S adding values 1CA answer (3)	**L2** **DH**
3.2.3.	$\mathbf{IQR = Q_3 - Q_1}$ 2 963 ✓**SF** = Q_3 −697 ✓**SF** Q_3 = 2 963 + 697 ✓**M** Q_3 = 3 660 ✓**CA**	2SF substitution of IQR & Q_1 1M Making Q_3 the subject 1CA value of $\mathbf{Q_3}$ (4)	**L2** **DH**
3.2.4.	Ratio 22 784 : 247 739 ✓✓**RT** 1 : 10,8733760534 1 : 10,87 ✓ **CA**	2RT both values 1CA answer **NPR** (3)	**L2** **DH**
			[27]

QUESTION 4

Quest.	Solution	Explanation	Level
4.1.1.	2021 – 1985 +1 = (36 + 1) years ✓ **M** = 37 years ✓ **A**	1M subtracting & adding 1A answer (2)	**L3** **F**
4.1.2.	Total pension fund = R 1 500 000 ÷ $\frac{1}{3}$ ✓ M = R 4 500 000 ✓ **A** OR Total pension fund = R 1 500 000 × 3 ✓ M = R 4 500 000 ✓ **A**	1M dividing by $\frac{1}{3}$ 1A OR 1M multiplying by 3 1A (2)	**L2** **F**

4.1.3.	Tax = R130 500 + 35% × (R1 500 000 – R1 050 000) ✓**M** Tax = R130 500 + 35% × (R450 000) ✓**1S** Tax = R130 500 + R157 500 Tax = R288 000 ✓ **A** Lump sum after tax = R1 500 000 – R288 000 ✓ **M** = R1 212 000 ✓ **CA** He was NOT correct✓ **O**	1M correct tax bracket 1S difference 1A answer 1M subtracting tax 1CA answer 1O conclusion (6)	**L3** **F**
4.2.1.	Percentage increase $= \frac{7,5-6,75}{6,75}$ ✓**RT** × 100%✓**M** $= \frac{0,75}{6,75} \times 100\%$ $= 11,1111111111\%$ = 11,11%✓ **CA**	1RT correct percentages 1M percentage concept 1CA answer NPR (3)	**L3** **F**
4.2.2.	Interest (2023) = R 550 000 × 6,75% ✓**M** = R 37 125 ✓**A** Amount with interest (End of 2023) = R 550 000 + R 37 125✓**MCA** = R 587 125 ✓**CA** Interest (2024) = R 587 125 × 7,5% = R 44 034,38 ✓**CA** Amount with interest (End of 2024) = R 587 125 + R 44 034,38 = R 631 159,38 i.e Amount in January 2025 = R 631 159,38 ✓**CA**	1M multiplying by 6,75% 1A answer 1MCA adding interest 1CA answer 1CA answer 1CA answer	**L4** **F**

	OR Amount with interest (End of 2023) = R 550 000 × 1,0675✓✓**M** = R 587 125✓**CA** Amount with interest (End of 2024) = R 587 125 × 1,075✓✓**M** = R 631 159,38 i.e Amount in January 2025 = R 631 159,38✓**CA** OR Amount in January 2025 = R 550 000 × 1,0675 × 1,075 ✓✓**M** ✓✓**M** = R 631 159,38 ✓✓**CA**	OR 2M multiplying by 1,0675 1CA answer 2M multiplying by 1,075 1CA answer OR 2M multiplying by 1,0675 2M multiplying by 1,075 2CA answer (6)	
		[19]	
			[GRAND TOTAL : 100]