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TOTAL MARKS

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NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2024

MATHEMATICAL LITERACY: PAPER I

EXAMINATION NUMBER

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Time: 3 hours

150 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of:
 - 28 pages that include 4 pages at the back for extra calculations or rough work.
 - Five questions
2. Please check that your question paper is complete.
3. Answer ALL FIVE questions.
4. **Answer ALL the questions on the question paper and hand this in at the end of the examination. Remember to write your examination number in the space provided.**
5. A non-graphical, non-programmable calculator may be used.
6. ALL necessary calculations must be clearly shown.
7. Units of measurement must be included where applicable.
8. It is in your own interest to write legibly and to present your work neatly.
9. Maps and diagrams are not necessarily drawn to scale.
10. Four blank pages (pages 25 to 28) are included at the end of the question paper. If you run out of space for an answer, use these pages. Clearly indicate the question number of your answer should you use this extra space.

Question	1		2		3		4		5		Total	
	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.	Marker	Mod.
Mark												
Signature												
Total	32		26		42		29		21		150	

QUESTION 1

The Drakensberg Mountains, being the highest mountain range in Southern Africa, attract numerous hikers, families, and individuals seeking a getaway from urban life. Situated on the border between South Africa and Lesotho, they serve as a favourite holiday destination. Table 1 below shows a list of some of the highest peaks found in the Drakensberg Mountains.



[Source: <<https://www.thetimes.co.uk/article/the-greatest-hike-the-drakensberg-mountains>>]

Table 1: The highest peaks in the Drakensberg Mountains

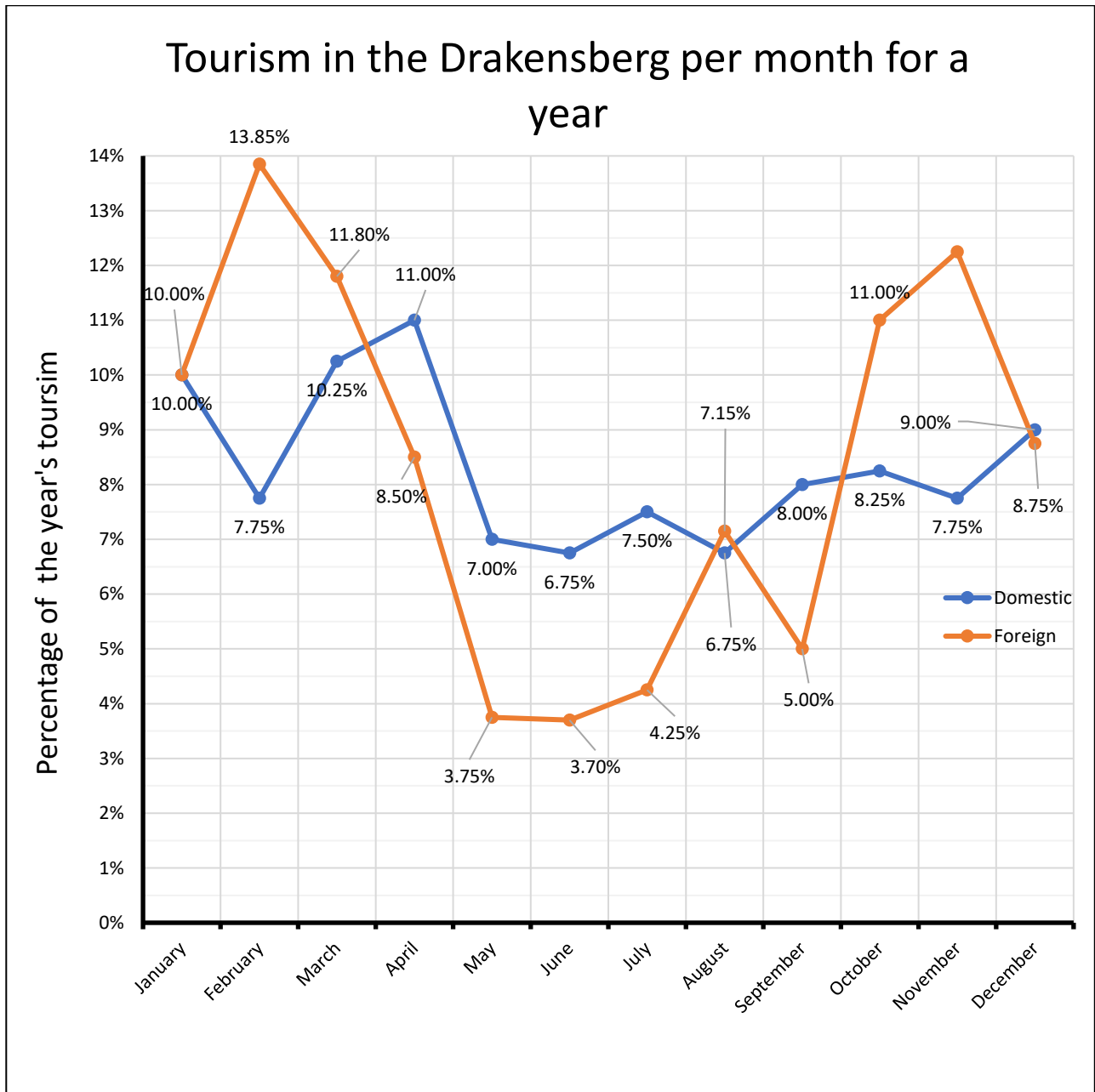
Name of Peak	Height in metres
Mafadi	3 450 m
Makoaneng	3 416 m
Injasuthi Dome	3 408 m
Giant's Castle	3 315 m
Champagne Castle	3 377 m
Mont-aux-Sources	3 282 m
Thabana Ntlenyana	3 482 m
Cleft Peak	3 282 m
Monks Cowl	3 234 m
Sentinel	3 165 m

1.1 Use Table 1 above to answer the questions that follow.

1.1.1 Give the name of the highest peak found in the Drakensberg.

(2)

1.2 The following graph shows the monthly percentages of domestic and foreign tourists visiting the Drakensberg Mountains for a year.



[Adapted from: Tourism Planning uKhahlamba Experience.pdf]

Use the above information to answer the questions that follow.

1.2.1 Identify the month with the highest percentage of domestic tourists. Write down the month and the percentage.

(2)

1.2.2 Give the month that had the lowest percentage of foreign tourists. Write down the month and the corresponding percentage.

(2)


1.2.3 Calculate the total of all the percentages for the domestic tourists.

(2)

1.2.4 Determine the missing November percentage for foreign tourists.

(2)

1.3 Michael Smith and his family plan to stay at the Cathedral Hotel. The following financial document was given to Michael Smith. It shows the cost of staying at the Cathedral Peak Hotel, a family-run hotel in the Cathedral Peak region of the Drakensberg Mountains.

				
P.O. Box 208 Winterton 3340 VAT 4390132696				
Michael Smith		Room No.: 022 Arrival Date: 25-06-23 Departure Date: 30-06-23 No. of Guests: 2 Adults 2 Children		
Date	Text	Reference	Charges ZAR	Credits ZAR
25-06-23	Transfer Deposit at check-in	Deposit		3 988,20
25-06-23	Acc Stay 5/More Night		4 310,00	
25-06-23	KZN Permits		# 90,00	
25-06-23	Tourism Levy		52,90	
26-06-23	Acc Stay 5/More Night		4 310,00	
26-06-23	KZN Permits		# 90,00	
26-06-23	Tourism Levy		52,90	
27-06-23	Acc Stay 5/More Night		4 310,00	
27-06-23	KZN Permits		# 90,00	
27-06-23	Tourism Levy		52,90	
28-06-23	Acc Stay 5/More Night		4 310,00	
28-06-23	KZN Permits		# 90,00	
28-06-23	Tourism Levy		52,90	
29-06-23	Acc Stay 5/More Night		4 310,00	
29-06-23	KZN Permits		# 90,00	
29-06-23	Tourism Levy		52,90	
	# Non-VAT items All other prices include VAT			
		Sub Total	22 264,50	3 988,20
	Total amount due		18 276,30	
	Total amount including VAT		21 814,50	
	Total amount excluding VAT		18 969,13	
	VAT Amount		Question 1.3.6	

[Adapted from: Cathedral Peak Hotel]

Note: Acc = Accommodation.

Use the information on the previous page to answer the questions that follow.

1.3.1 State the type of financial document shown on the previous page.

(2)

1.3.2 Determine the total number of guests indicated on this financial document.

(2)

1.3.3 (a) State how many nights the Smith family plan to stay at the Cathedral Peak Hotel.

(2)

(b) Determine the daily cost the family will pay for accommodation.

(2)

(c) Calculate the total cost of the accommodation for all the days.

(2)

1.3.4 Name two other daily costs, besides accommodation, that Michael Smith needs to pay.

(2)

1.3.5 Show, using calculations, how the total amount including VAT of R21 814,50 was calculated.

(2)

1.3.6 Calculate the missing VAT amount.

(2)
[32]

QUESTION 2

2.1 MSC Cruises South Africa offers cruise holiday packages that comprise various destinations such as South Africa, the Mediterranean, the Caribbean, the Emirates, and other locations across the globe. During a flash sale on MSC Cruises South Africa's website, Steve and Joy took advantage of the opportunity and booked a cruise.

<p>3 Night cruise Flash Sale 35% discount Sale price Only R10 854 per couple Balcony cabin</p>	
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[Source: <<https://www.msccruises.co.za/cruise-deals>>]

Use the above information to answer the questions that follow.

2.1.1 Calculate the cost per person per night.

(3)

2.1.2 Determine the VAT amount on the sale price of R10 854 if this amount is inclusive of VAT.

(2)

2.1.3 Calculate the full price of this cruise before applying the 35% discount.

(4)

2.1.4 Joy's brother in Canada agreed to cover the discounted cost of the cruise and gave them R5 000 spending money as a gift for their 20th wedding anniversary.

Table 2 below shows the latest currency exchange rates.

Xe.com currency converter	
USA dollar \$1	South African rand R18,808113
Canada dollar \$1	South African rand R14,212394
Australian dollar \$1	South African rand R12,518224

[Adapted from: <<https://www.xe.com/currencyconverter/convert>>]

Use the information in Table 2 to answer the questions that follow.

(a) Calculate the total amount that Joy's brother gave them in Canadian dollars. Round off to two decimal places.

(4)

(b) Steve and Joy did not spend all the money they had received. They invested R3 000 in a savings account which received compound interest at a rate of 4,5% per annum. Complete Table 3 below to calculate the accumulated amount they saved after 3 years.

Table 3: Savings after 3 years

	Opening balance	Interest	Closing balance
Year 1	R3 000		
Year 2			
Year 3			

(4)

2.2 The following data was given on a website. Table 4 below shows the number of passengers (in millions) transported by MSC Cruises worldwide from 2015 to 2021.

Table 4

Year	Passengers (in millions)
2015	1,65
2016	1,82
2017	1,98
2018	2,37
2019	2,7
2020	0,69
2021	0,72

[Source: <<https://www.msccruises.co.za>>]

Use the information in Table 4 to answer the questions that follow.

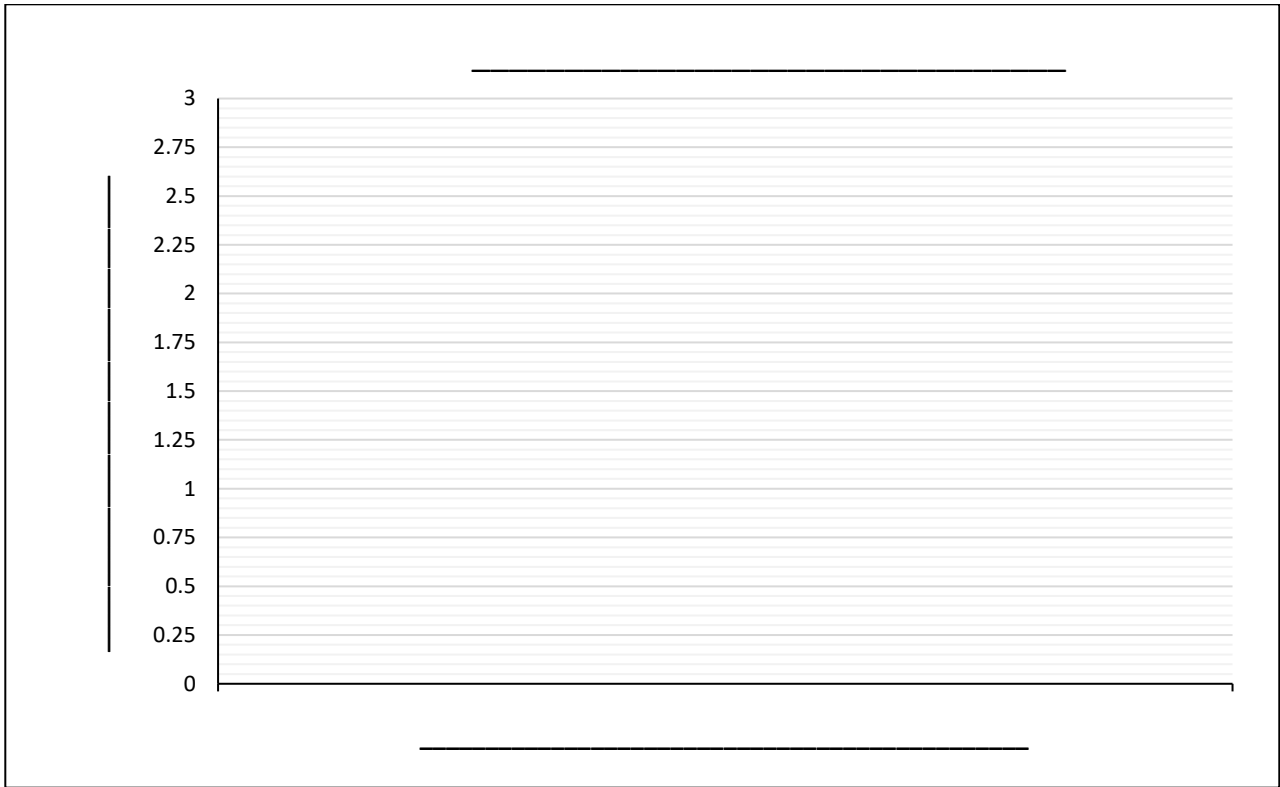
2.2.1 Write out in full the number of passengers transported in 2018 without using commas or words.

(2)

2.2.2 State, in words, the total number of passengers transported in 2021.

(2)

2.2.3 Use the data given in Table 4 to draw a line graph on the grid below. Include all graph elements.




(5)
[26]

QUESTION 3

3.1 The advertisement below shows the listed prices of two models within the Honda motor vehicle brand.

Table 5: Prices of two Honda models



Honda BR-V 7-Seater 2023

Model	Cash Price	Deposit	Monthly Instalment
Honda BR-V 1.5 Trend	R389 900	R40 000	R5 600 for 6 years
Honda BR-V 1.5 Comfort	R419 900	R50 000	R6 400 for 6 years

[Adapted from: <https://www.cmhhonda.co.za/new_model/br-v/>]

Use the information in Table 5 to answer the questions that follow.

3.1.1 (a) Calculate the deposit price as a percentage of the cash price for the Comfort model.

(3)

(b) Determine the total cost of the monthly instalments for the Comfort model.

(3)

(c) Calculate the total cost of purchasing the Comfort model using the monthly instalment option.

(2)

- (d) State the type of agreement used when a car is purchased on monthly instalments.

(2)

- (e) Give one advantage and one disadvantage of purchasing a car using monthly instalments.

(4)

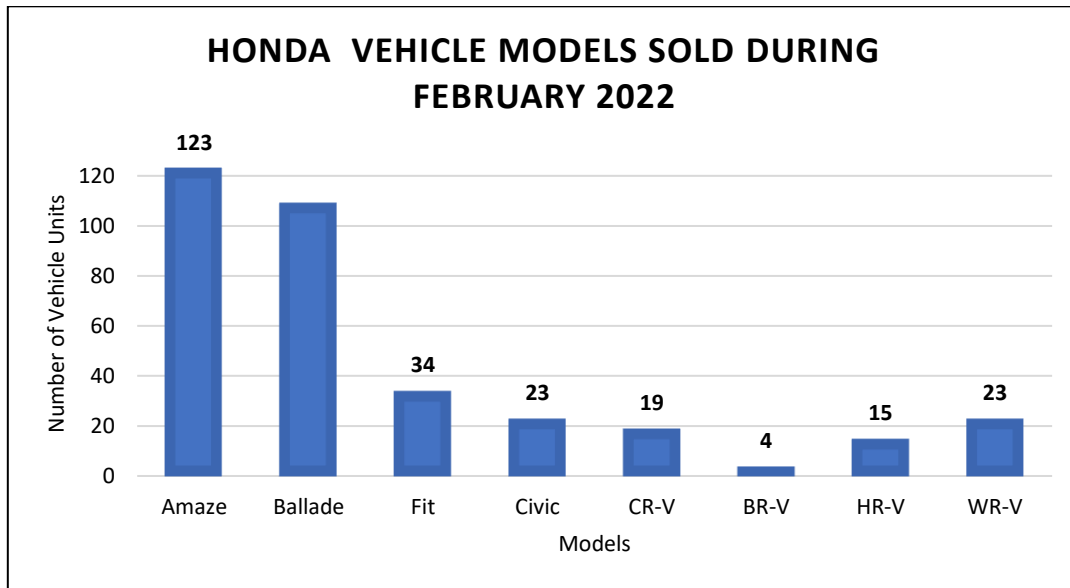
3.1.2 If you decide to purchase the Trend model using monthly instalments rather than paying the cash price, you will incur additional costs. Calculate the percentage of this extra cost compared to the cash price.

You may use the following formula:

$$\text{Percentage increase} = \frac{\text{Instalment Price} - \text{Cash Price}}{\text{Cash Price}} \times 100\%$$

(6)

3.2 The following bar graph shows the number of Honda vehicle models sold in South Africa during February 2022.



[Adapted from: <<https://www.cars.co.za/motoring-news/what-has-happened-to-honda-sa-a-look-at-sales-figures/117948/>>]

Use the above information to answer the questions that follow.

3.2.1 Calculate the median number of vehicle units sold.

(2)

3.2.2 Determine the modal number of vehicle units sold.

(2)

3.2.3 Calculate the range of vehicle units sold.

(2)

3.2.4 If the mean for the vehicle units sold is 43,75, use calculations to show that the missing value for the Honda Ballade model is 109 units.

(4)

3.2.5 (a) Calculate, as a percentage, the probability of randomly selecting an Amaze model.

(2)

(b) Determine, as a decimal, the probability of randomly selecting a model that begins with the letter 'C'.

(3)

3.2.6 The number of vehicle units sold by Honda during February 2022 was much lower, when compared to February 2015. There was a $-75,19\%$ change in the number of vehicle units sold during this period (2015 to 2022).

(a) State the significance of the negative sign in the percentage change of $-75,19\%$.

(2)

(b) Calculate the number of vehicle units sold during 2015. Give your answer to the nearest whole number.

(5)
[42]

QUESTION 4

4.1 Table 6 below shows the water tariffs for the various bands for the City of Johannesburg for the period 2021/2022 and 2022/2023. Rates are charged per kilolitre or part thereof.

Table 6: Johannesburg water tariff table for the periods 2021/2022 and 2022/2023.

Band	Consumption Level (kilolitres) per month	2021/2022 Tariff (rands/kl)	2022/2023 Tariff (rands/kl)
1	0–6	-	-
2	> 6–10	R20,28	R22,26
3	> 10–15	R21,17	R23,23
4	> 15–20	R29,68	R32,57
5	> 20–30	R41,01	R45,01
6	> 30–40	R44,86	R49,23
7	> 40–50	R56,59	R62,11
8	> 50	R60,65	R66,56

[Source: <<https://joburg.org.za/documents/Documents/TARIFFS/2021-22%20Tariffs/Water.pdf>>]

Use the above information to answer the questions that follow.

4.1.1 Simon, a young professional, stated that the increases from 2021/2022 to 2022/2023 in each band were excessive as they were much higher than the inflation rate of 5,5% during this period.

(a) Define the term *inflation*.

(2)

(b) Show, by calculating at least two band increases, that Simon's statement is valid when he stated that the increases were more than the 5,5% inflation rate.

(4)

4.1.2 Complete Table 7 below to help Simon calculate his water bill if he used 25 kilolitres of water during July 2022/2023.

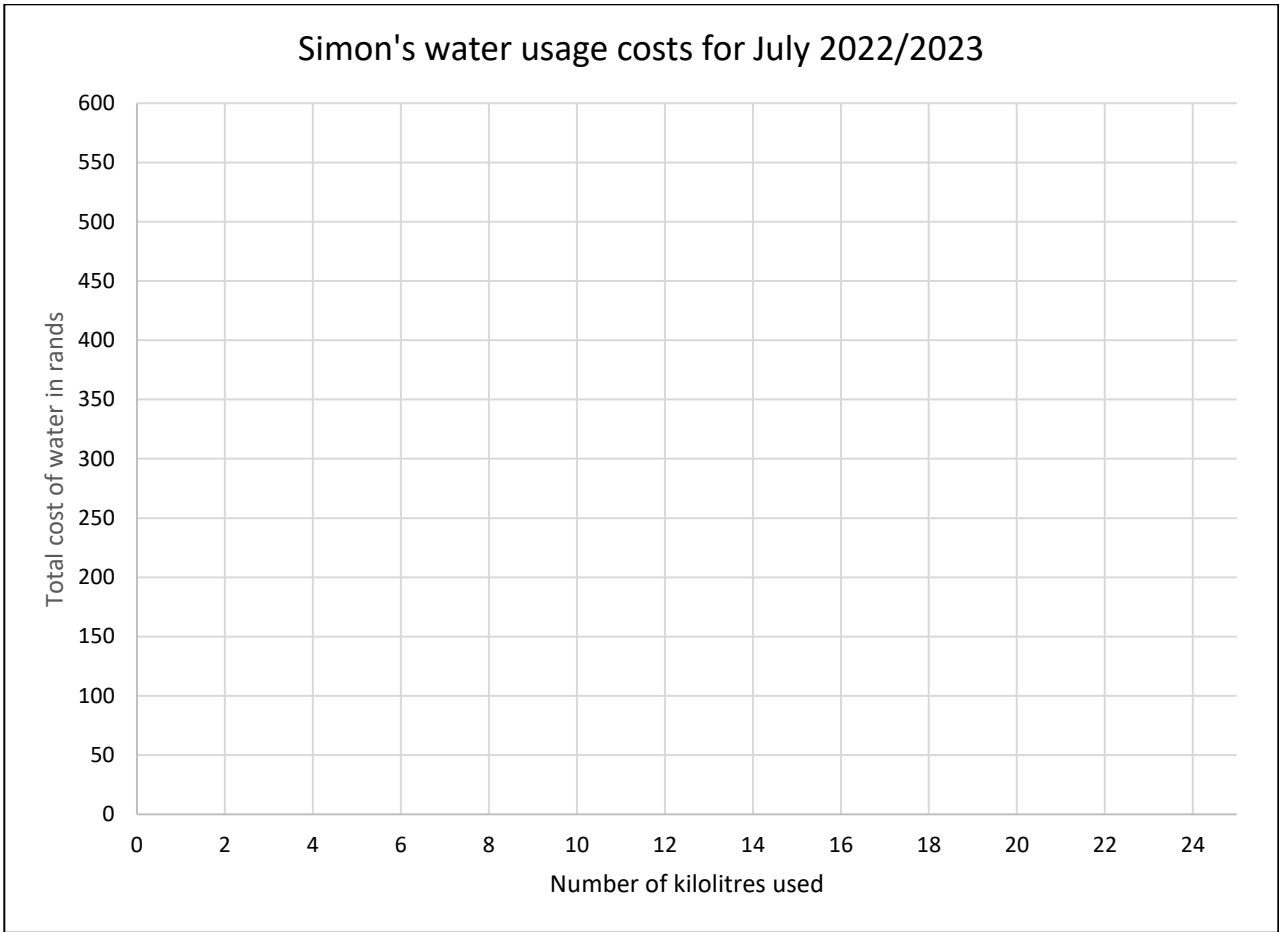
Cumulative Total: Cumulative sums, or running totals, are used to display the total sum of data as it grows with time. This lets you view the total contribution so far of a given measure against time.

Table 7: Simon's water consumption calculation during July 2022/2023

Band	Rate	Amount of kilolitres per band	Total	Cumulative Total
0–6	-			
> 6–10	R22,26			
> 10–15	R23,23			
> 15–20	R32,57			
> 20–30	R45,01			
> 30–40	R49,23			
> 40–50	R62,11			
> 50	R66,56			
Total cost				

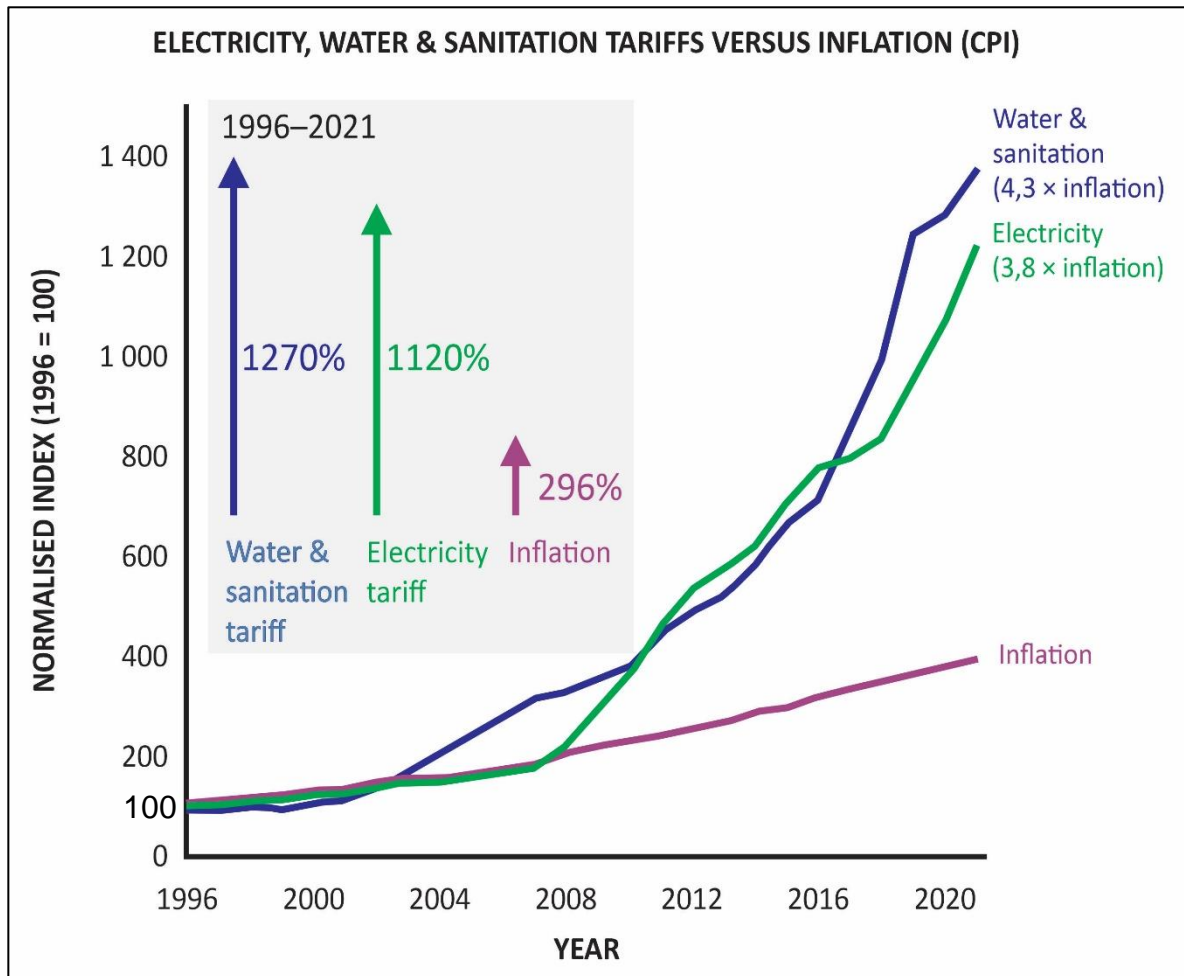
(6)

4.1.3 Use your completed Table 7 and the cumulative totals from **Question 4.1.2** to draw a line graph showing Simon's water usage during July 2022/2023.



(5)

4.2 The following graph shows the increase in the tariffs for water & sanitation and electricity compared to inflation for the period 1996 to 2020.



[Source: <<https://poweroptimal.com/the-price-of-water-and-electricity-in-south-africa-a-tale-of-two-tragedies/>>]

Use the above information to answer the questions that follow.

4.2.1 (a) Give the normalised index for 1996.

(2)

(b) Explain why it is important for all three tariffs having the same starting value.

(2)

4.2.2 Using calculations, show whether the increases in water and sanitation is exactly 4,3 times the increase in inflation as indicated in the graph.

(4)

4.2.3 The graph shows that the increase in electricity tariffs was 1120%. Simon stated that it is impossible to have a percentage greater than 100%. Show using calculations whether 1120% is correct.
(Note: The final value for the electricity tariff in the year 2020 was 1 220.)

(4)

[29]

QUESTION 5

Serving as a Chief Executive Officer (CEO) in the banking sector is an immensely demanding and high-pressure role. Nevertheless, it offers substantial salaries as a rewarding incentive for performing the job exceptionally well. Table 8 below shows the annual and daily salaries of 5 banking CEOs in South Africa.

Table 8: Annual and daily salaries of the top 5 banking CEOs in South Africa.

Bank	CEO's annual salary	Value per day
Investec	R177 600 000	R486 575
Capitec	R62 090 000	R170 109
Standard Bank	R55 690 000	R152 575
ABSA	R46 050 000	R126 164
Nedbank	R43 600 000	R119 452

[Source: <<https://businesstech.co.za/news/banking/701513/meet-the-south-african-banking-bosses>>]

Use the above information to answer the questions that follow.

5.1 Show, using calculations, how the amount of R119 452 per day was calculated.

(3)

5.2 The CEO of Investec is paid the equivalent of £7 500 000 per annum. Calculate the pound sterling : rand exchange rate in the form £1: _____.

Write your answer correct to two decimal places.

(4)

5.3 Determine the probability, expressed as a fraction, of randomly selecting a bank CEO whose salary exceeds R0,15 million per day.

(2)

5.4 Table 9 below shows the tax table for the 2023/2024 tax year which is used to calculate the individual annual taxes payable.

Table 9: Tax table for 2023/2024 tax year

Tax bracket	Annual Taxable income (R)	Rates of tax (R)				
		2024/2023	2023/2022	2022/2021	2021/2020	2020/2019
1	1–237 100	18% of taxable income				
2	237 101 – 370 500	42 678 + 26% of taxable income above 237 100				
3	370 501 – 512 800	77 362 + 31% of taxable income above 370 500				
4	512 801 – 673 000	121 475 + 36% of taxable income above 512 800				
5	673 001 – 857 900	179 147 + 39% of taxable income above 673 000				
6	857 901 – 1 817 000	251 258 + 41% of taxable income above 857 900				
7	1 817 001 and above	644 489 + 45% of taxable income above 1 817 000				
Tax Rebate		Tax Year				
		2024/2023	2023/2022	2022/2021	2021/2020	2020/2019
Primary		R17 235	R16 425	R15 714	R14 958	R14 220
Secondary (65 and older)		R9 444	R9 000	R8 613	R8 199	R7 794

[Source: <www.sars.gov.za>]

Use Table 8 and Table 9 to answer the questions that follow.

5.4.1 Determine the primary rebate for the 2023/2024 tax year.

(2)

5.4.2 When will a taxpayer be eligible for the secondary rebate?

(2)

5.4.3 (a) Identify which tax bracket the salary of the Nedbank CEO will fall into.

(2)

- (b) Show that the Nedbank CEO, born in 1966, pays taxes exceeding R50 000 per day.

(6)
[21]

