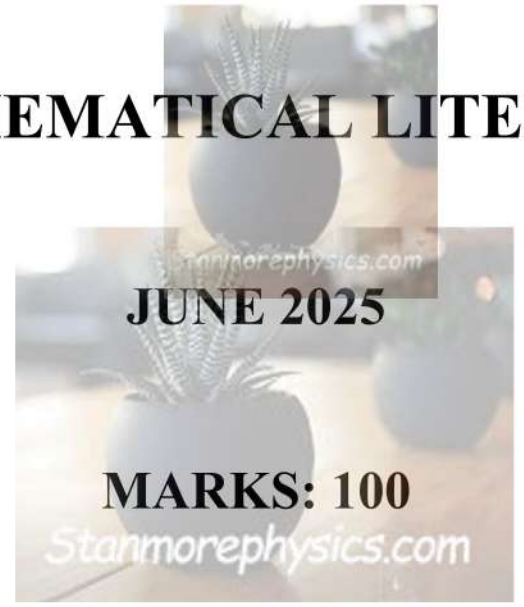
education

Department of Education
FREE STATE PROVINCE

PAPER 1

GRADE 12

MATHEMATICAL LITERACY



JUNE 2025

MARKS: 100

TIME: 2 HOUR

This question paper consists of 10 pages including an ANSWER SHEET and an ADDENDUM with 4 ANNEXURES.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.

2. Use the ANNEXURES in the ADDENDUM to answer the following questions.

   ANNEXURE A FOR QUESTION 2.1.
   ANNEXURE B FOR QUESTION 3.1.
   ANNEXURE C FOR QUESTION 3.2.
   ANNEXURE D FOR QUESTION 4.1.

3. Answer QUESTION 2.2.3 on the attached ANSWER SHEET.

   Write your name and surname in the spaces provided on the ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.

4. Number the answers correctly according to the numbering system used in this question paper.

5. Start EACH question on a NEW page.

6. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.

7. Show ALL calculations clearly.

8. Round off ALL final answers appropriately according to the given context, unless stated otherwise.

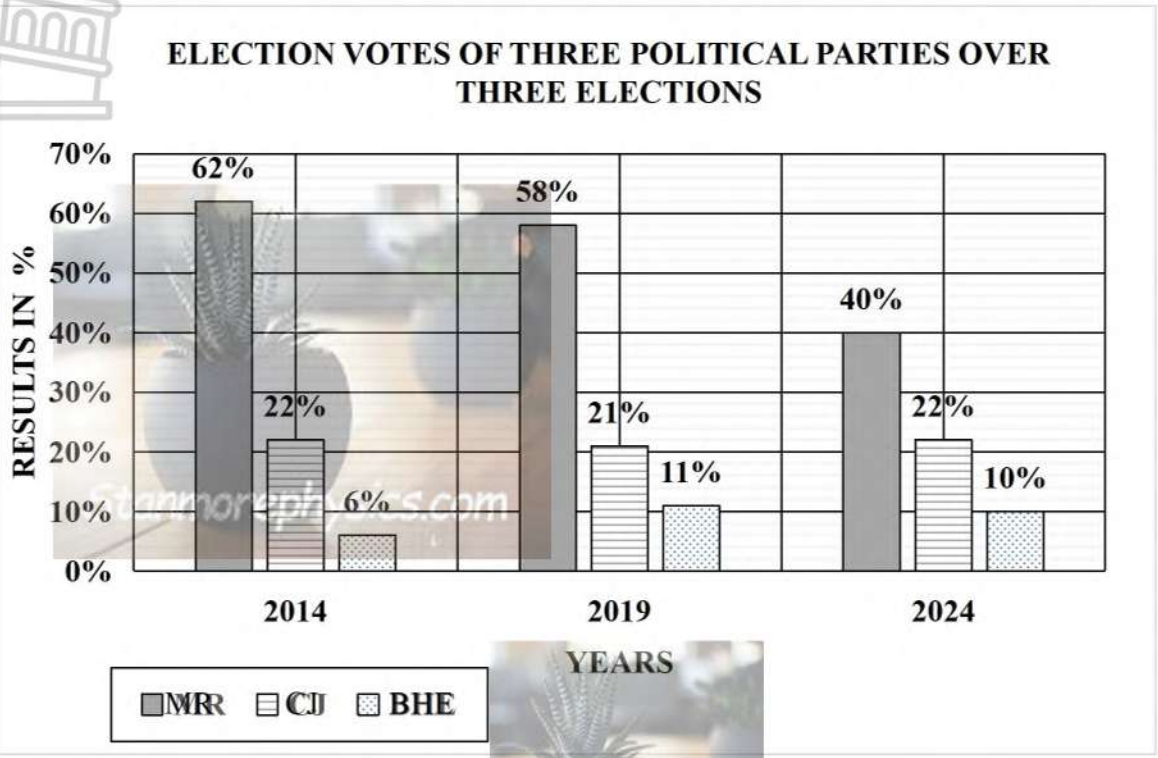
9. Indicate units of measurement, where applicable.

10. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

11. Write neatly and legibly.

QUESTION 1

1.1 The graph below shows the votes (in %) for the national election of a certain country over a period of three (3) years.



[Source: Adapted from results.election.org.za]

Use the graph and the information above to answer the following questions.

1.1.1 Identify the type of graph shown above. (2)

1.1.2 Write down the party that received the most votes in 2019. (2)

1.1.3 Calculate the difference in percentage between the most votes in 2014 and the most votes in 2024. (3)

1.2 The School Governing Body at L.E Notsi Secondary School approved an annual matric camp fee of R3 500,00 per learner for 2025. This includes a 10% increase in the 2024 annual matric camp fee.

If the fee is paid in full by the end of March 2025, a learner will receive a discount equivalent to the percentage increase in the matric camp fee.

Learners will be required to buy a matric Jackets at a cost of R450,00 for their matric year, which is not part of the camp fee.

[Source: Adapted from an actual school budget]

Use the information above to answer the questions that follow.

1.2.1 Define the term *discount* in the given context. (2)

1.2.2 Calculate the amount a parent would have saved if they paid for the camp in full before the end of March 2025. (3)

1.2.3 Express the ratio (in the simplest form) of the jacket cost to the camp fee. (2)

1.2.4 Calculate the instalment for a parent who chose to pay for the 2025 matric camp in seven equal payments. (3)

1.2.5 Determine the total amount the school will receive for the camp if there is a total of one hundred learners and no discount was given. (3)

[20]

QUESTION 2

2.1 Mrs Swanepoel who is 72-year-old earns an annual income of R2 475 566,00. She contributes 7,5% to the Government Employee Pension Fund (GEPF).

She is a member of a medical aid scheme and contributes to a medical aid for herself, husband and four grandchildren.

Table 1 on ANNEXURE A shows the tax table for the 2024/2025 tax year.

Use ANNEXURE A and the information above to answer the following questions.

2.1.1 Write the annual income in words. (2)

2.1.2 Identify a non-taxable deduction from the list provided below:

A Medical aid contribution

B Pension fund

C Insurance (2)

2.1.3 Calculate Mrs Swanepoel's annual taxable income. (4)

2.1.4 Show by means of calculations that Mrs Swanepoel's annual medical tax credit is R20 544. (3)

2.1.5 Mrs Swanepoel claims that she is paying an annual tax of more than R900 000.

Verify, showing ALL calculations, whether her claim is valid. (7)

2.1.6 Give a reason why people who are aged 75 years and older pay less tax than people younger than 75 years when they are earning the same taxable income. (2)

2.2 Mrs Swanepoel and her husband are using the same cell-phone network provider, but each uses it under different conditions.

Mrs Swanepoel is on a cell-phone contract where:

- She pays a fixed cost of R450 per month and receives 100 free minutes.
- Thereafter the call cost is R1,40 per minute or part thereof.

Mr Swanepoel is on a prepaid option and pays R2,25 per minute.

TABLE 2 below shows the number of minutes and the total cost for the contract and prepaid option.

TABLE 2: NUMBER OF MINUTES AND TOTAL COST FOR TWO OPTIONS

Number minutes per month	0	50	100	200	300	**E**
Contract Total cost (R)	450	450	**D**	590	730	1 990
Prepaid Option Total cost (R)	0	112,50	225	**F**	675	2 700

Use the information above to answer the questions that follow.

2.2.1 Write down the formula that can be used to calculate Mrs Swanepoel's cell-phone contract cost, in the form:

Total cost = … (3)

2.2.2 Calculate the value of:

(a) **D**, the contract total cost. (2)

(b) **E**, the number of minutes per month. (3)

(c) **F,** prepaid option total cost. (2)

2.2.3 The graph for the prepaid option has already been drawn on the attached ANSWER SHEET.

Use the information from TABLE 2 to draw on the same set of axes a graph representing Mrs Swanepoel's total cost for the contract per minute. (3)

[33]

QUESTION 4

4.1 ANNEXURE D shows the top 10 highest paying jobs in South Africa and the minimum monthly salary of each job.

Use the information on ANNEXURE D to answer the questions that follow.

4.1.1 State whether the data is *numerical* or *categorical*.

4.1.2 Write down in full the monthly salary of a person working as a Software architect.

4.1.3 Calculate the missing value **G,** if the mean value is R1 462 000.

4.1.4 Write down the mode of the salaries.

4.1.5 Determine (as a decimal fraction) the probability of selecting a job that is paying more than R100 000 per month out of all the jobs shown on ANNEXURE D.

4.1.6 Show, with calculations, that the salaries of the top 5 highest paying jobs are more than 50% of the salaries of ALL the highest paying jobs.

QUESTION 3

3.1 The enrolment of grade 12 Mathematical Literacy learners across three education circuits is shown on ANNEXURE B.

Use ANNEXURE B and the information above to answer the following questions.

3.1.1 Write down the circuit with the highest learner enrolment. (2)

3.1.2 Identify the median number of learners for circuit 2. (2)

3.1.3 Determine the range of circuit 1. (3)

3.1.4 The director of the three circuits announced to the media that if the inter quartile range for the learner enrolment in circuit 3 is 43,25 then Q3 will be more than 70. Verify, showing all calculations, whether the statement is correct.

You may use the formula:

IQR = Q3 – Q1

(5)

3.2 The height -for -age and weight-for-age percentile curves are given on ANNEXURE C.

Use ANNEXURE C and the information above to answer the following questions.

3.2.1 Write down the name of the graph shown on ANNEXURE C.
. (2)

3.2.2 Identify the age group covered by the graph. (2)

3.2.3 Between which two percentile curves will a 15-year-old girl with a height of 160 cm lie. (2)

3.2.4 An 18-year-old grade 12 learner was informed by a nurse that her weight falls at the 90th percentile. Explain to the learner what this means. (2)

[20]

4.2 A pilot used Mepo Bank online loan calculator to check what the monthly repayment will be on a loan to buy a house if his gross monthly income is R75 000.

The bank charges:

- an initiation fee (once-off) of R1 207,50 which is not part of the monthly repayment.
- a monthly service fee of R69 (included in the monthly repayment).

Mepo Bank online loan calculator gave the information below:

Gross monthly income	You can afford a home loan of
R75 000	R2 326 207
Your deposit amount	Monthly repayment
R250 000	R22 500
Interest rate	Your home loan amount
11,75	R2 076 207
Repayment period	
20 years	

[Source:www.sahomeloans.com]

Use the information above to answer the questions that follow.

4.2.1 Explain the meaning of the term *gross income*. (2)

4.2.2 Give the repayment period of the loan in months. (2)

4.2.3 Calculate the real cost of the loan.

You may use the formula:

Real cost of loan = Monthly repayment × Loan period in months + initiation fee (3)

4.2.4 The pilot claims that his home loan amount was incorrectly calculated.

Verify, showing all calculations, if the claim is valid. (3)

[27]

TOTAL:100

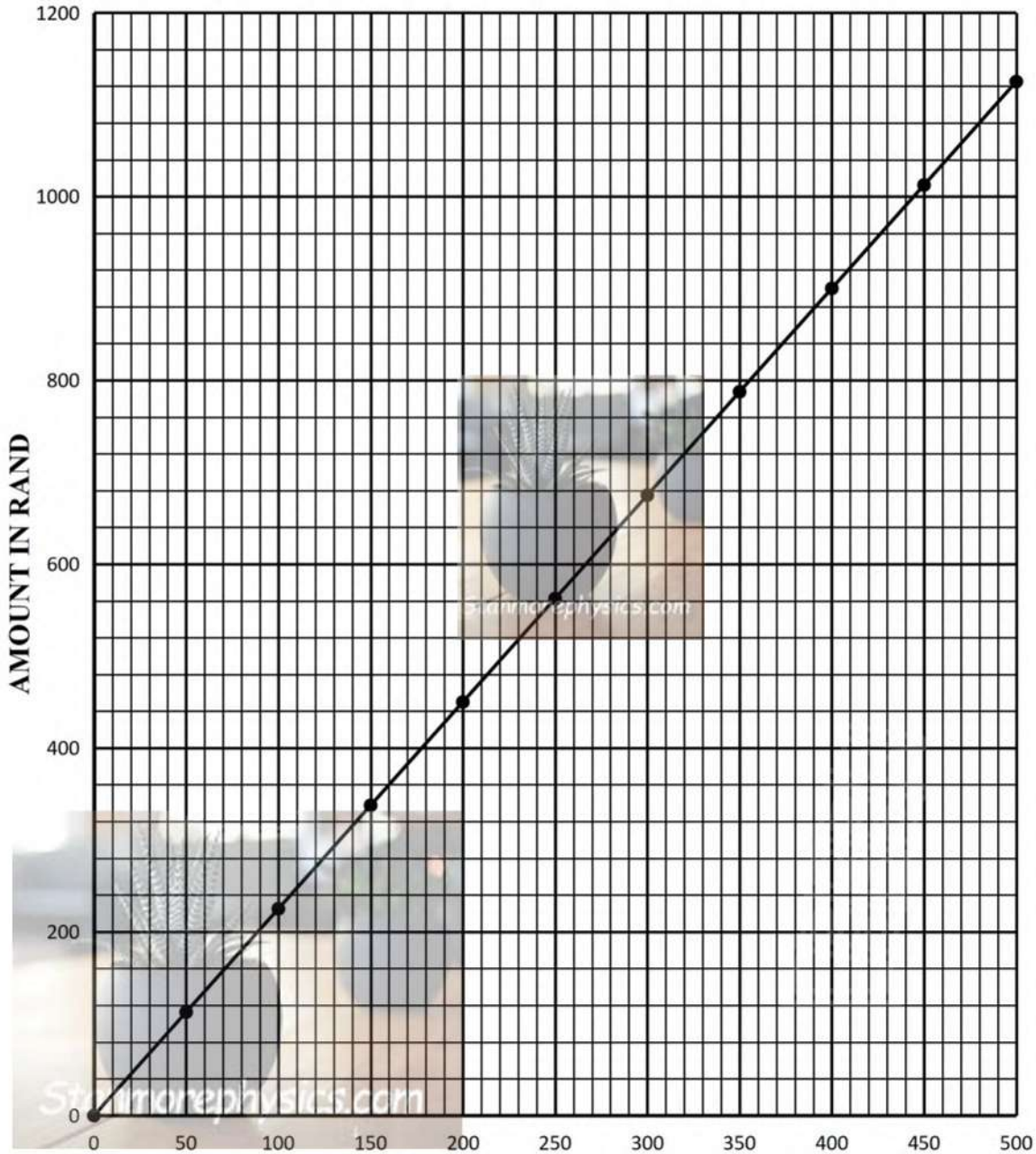
ANSWER SHEET

QUESTION 2.2.3

HAND IN WITH YOUR ANSWER BOOK

NAME: …… CLASS: ……

COST FOR TWO CELL PHONE OPTIONS



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JUNE EXAMINATION

PAPER 1

GRADE 12

MATHEMATICAL LITERACY P1

JUNE 2025

ADDENDUM

This addendum consists of 5 pages with 4 ANNEXURES.

ANNEXURE A

QUESTON 2.1

TABLE 1: TAX RATES FOR 2024/2025 TAX YEAR

Taxable income (R)	**Rates of tax (R)**
1-237 100	18% of taxable income
237 101-370 500	42 678 + 26% of taxable income above 237 100
370 501- 512 800	77 362 +31% of taxable income above 370 500
512 801- 673 000	121 475 + 36% of taxable income above 512 800
673 001 – 857 900	179 147 +39% of taxable income above 673 000
857 901- 1 817 000	251 258 +41% of taxable income above 857 900
1 817 001 and above	644 489 + 45% 0f taxable income above 1 817 000

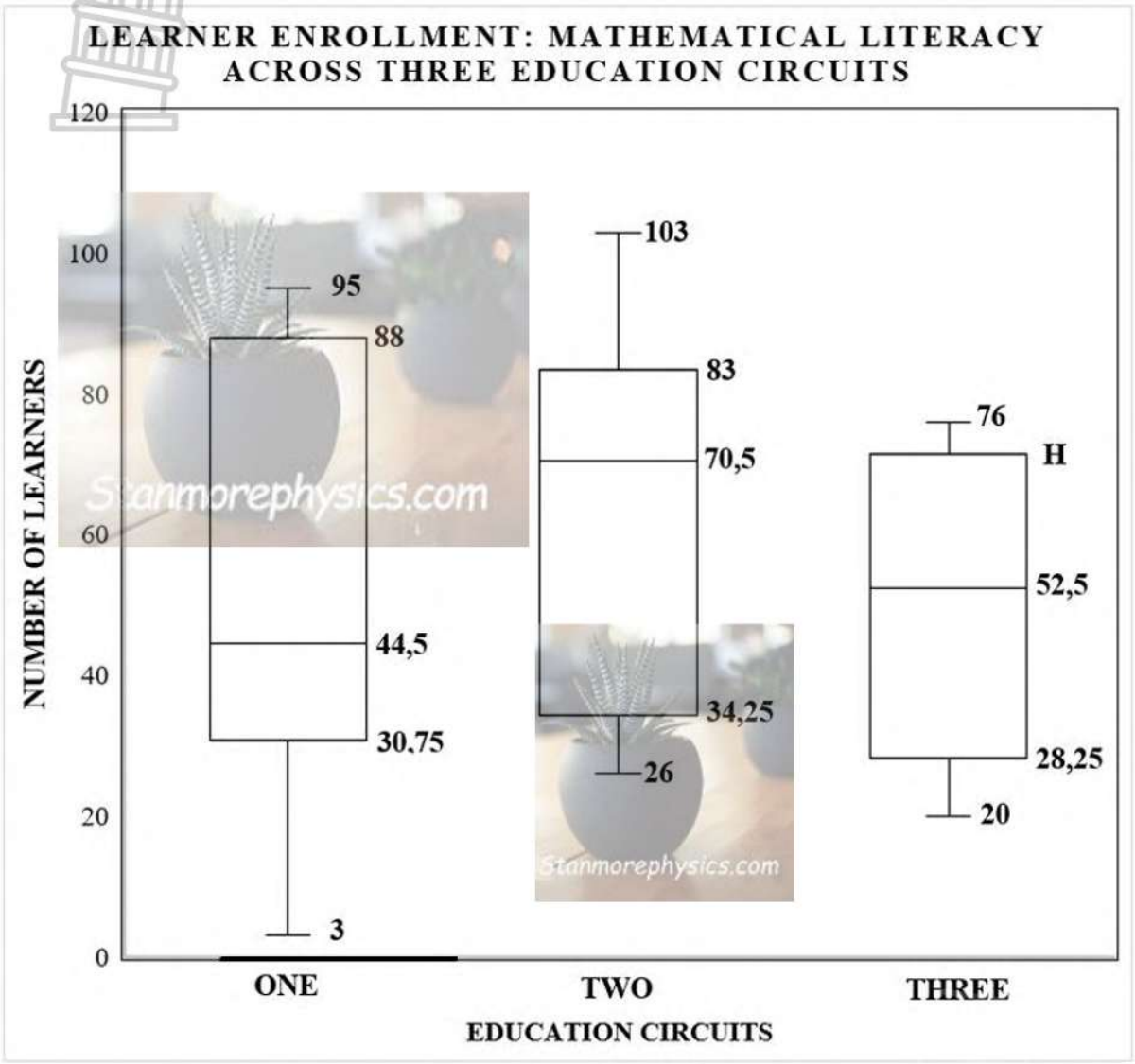
Rebate	**Rebate amount (R)**
Primary	R17 235
Secondary (65 and older)	R9 444
Tertiary (75 and older)	R3 145

Age	**Threshold 2024/2025**
Under 65	R95 750
65 and older	R148 217
75 and older	R165 689

MTC (Medical Tax Credit)	**Per month**
Main member	R364
Main member + 1st dependant	728
Each additional dependant	R246

[Source: www.sars.gov.za]

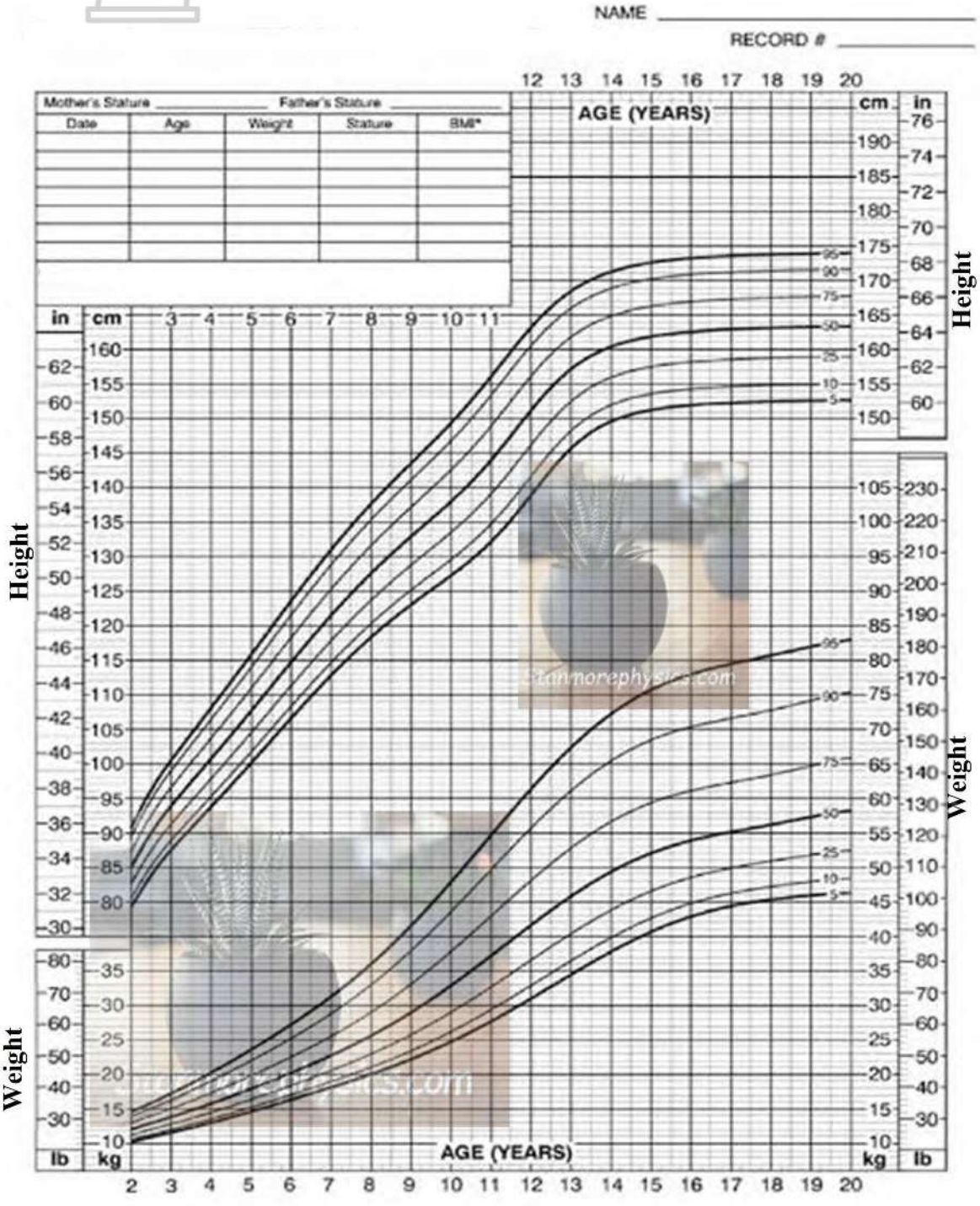
ANNEXURE B
QUESTION 3.1



ANNEXURE C

QUESTION 3.2

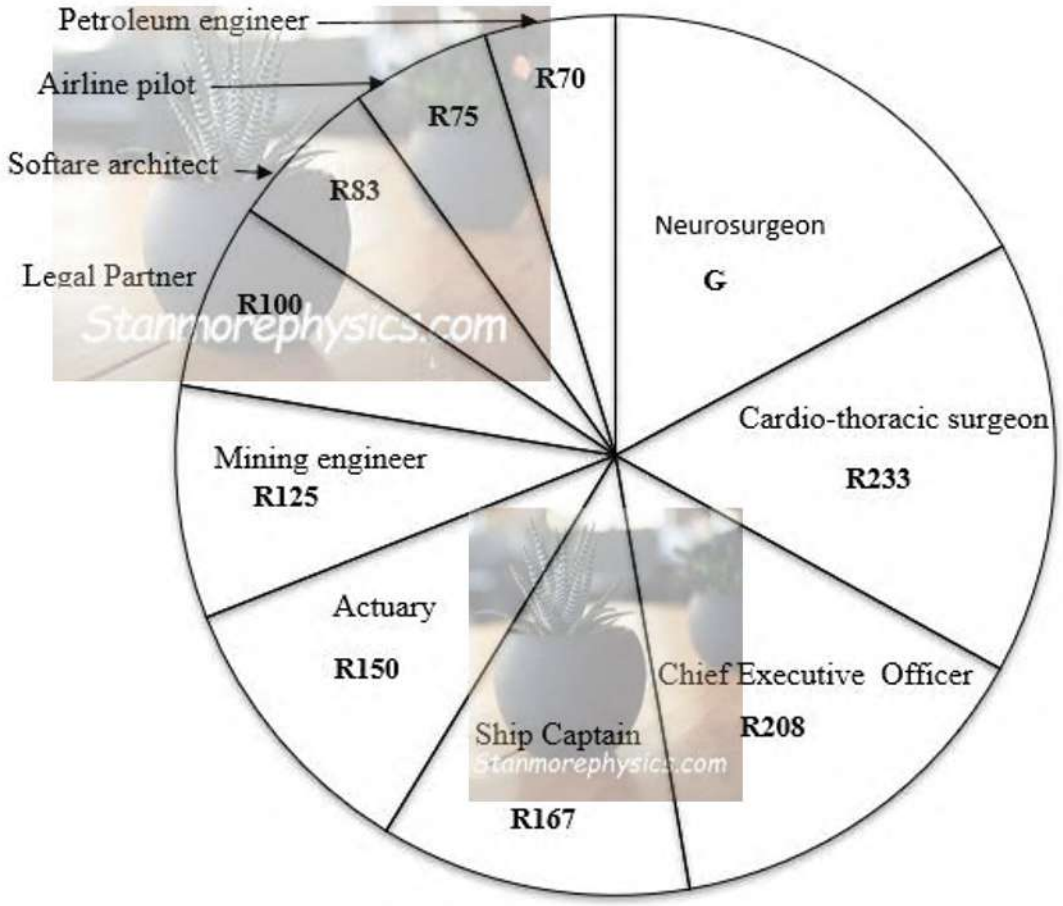
HEIGHT-FOR-AGE AND WEIGHT-FOR-AGE PERCENTILES FOR GIRLS



ANNEXURE D

QUESTION 4.1

MONTHLY SALARY OF THE HIGHEST PAYING JOBS IN SOUTH AFRICA IN THOUSANDS



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JUNE PAPER 1
GRADE 12

MATHEMATICAL LITERACY /
WISKUNDIGE GELETTERDHEID

2025

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 100

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./*Penalisering, bv. vir geen eenhede/verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for rounding/*Geen penalisering vir afronding nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*

These marking guidelines consist of 7 pages.
Hierdie nasienriglyne bestaan uit 7 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.*

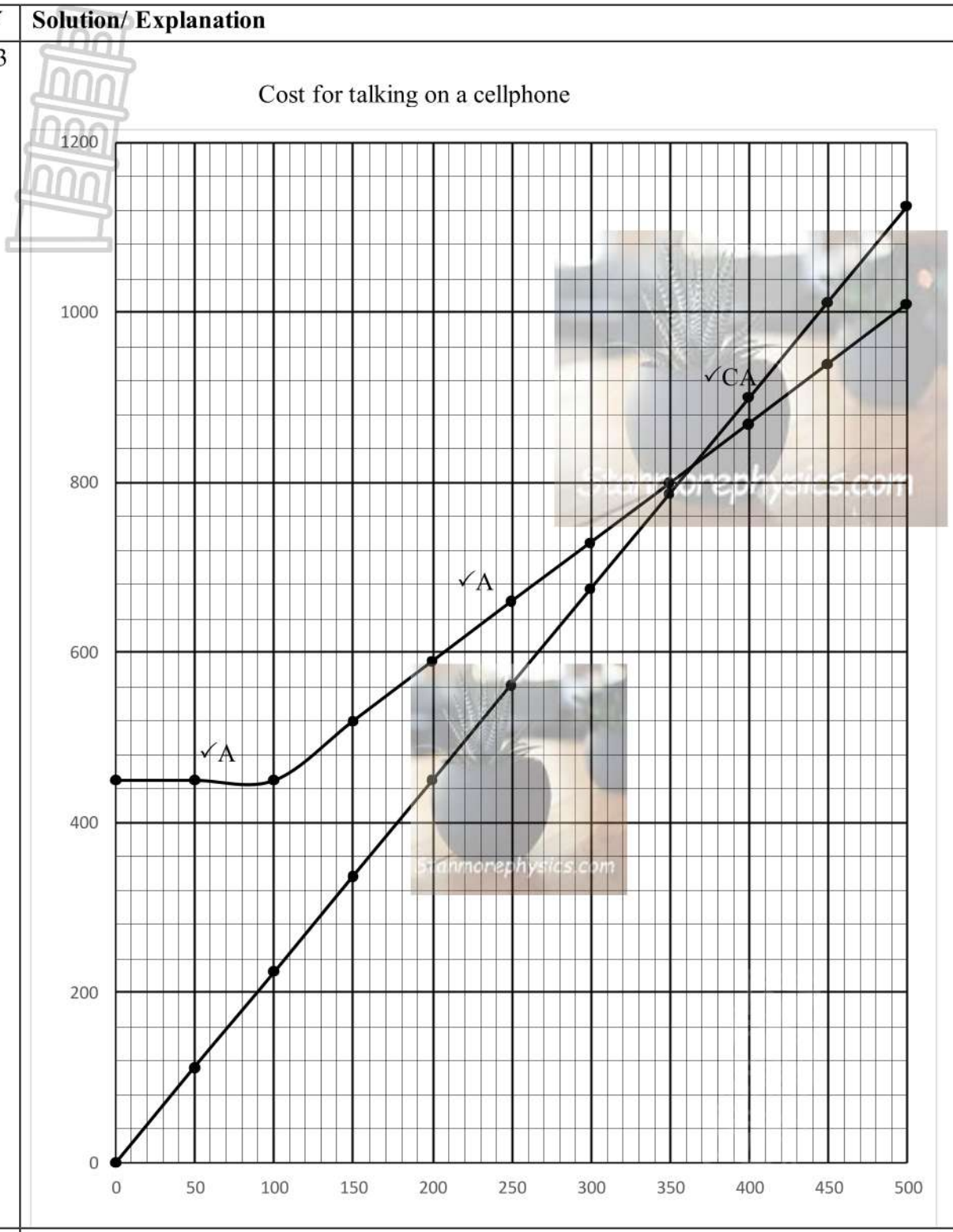
QUESTION/*VRAAG* 1 [20 MARKS/*PUNTE*]		**ANSWER ONLY FULL MARKS**	
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1.1	✓A Compound / Multiple / Bar Graph ✓A	1A compound/multiple 1A Bar graph (2)	D L1 M
1.1.2	MR ✓✓A	2A correct party (2)	D L1 E
1.1.3	✓RT 62% -40% ✓MA 22%✓A	1RT both correct values 1MA subtracting correct values 1A simplification (3)	D L1 D
1.2.1	A portion of money that is reduced from the cost of a matric camp.✓✓A	2A definition in context (2)	F L1 M

1.2.2	Amount saved = $\frac{10}{100}$ ✓RT × R3 500 ✓MA = R350 ✓A OR $\frac{100}{110}$ ✓RT × R3 500 ✓MA = R318,818.... Money saved = R3 500 – R3 181,818... = R318,82 ✓A	1RT correct percentage 1MA multiplying by correct amount 1A answer 1RT correct percentage 1MA multiplying by correct amount 1A answer (3)	F L1 D
1.2.3	450 : 3 500 ✓MA 9 : 70 ✓A **Also accept** 450 : 3 500 ✓MA 1 : 7,78 ✓A	1MA correct values in the correct order 1A simplification (2)	F L1 E
1.2.4	Instalment = $\frac{R3\ 500}{7}$ ✓A ✓A = R500 ✓A	1A numerator 1A denominator 1A simplification (3)	F L1 E
1.2.5	Total amount = R3 500 ×100 ✓MA ✓MA = R350 000 ✓A	1MA correct values 1MA multiplying values 1A simplification (3)	F L1 M
			[20]

QUESTION/*VRAAG* 2 [33 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
2.1.1	Two million four hundred and seventy five thousand five hundred and sixty-six. ✓✓A	2A correct value in words (2)	F L1 E
2.1.2	**B**/Pension Fund ✓✓A	2A pension fund (2)	F L1 M
2.1.3	Pension contribution = $\frac{7,5}{100} \times$ R2 475 566 ✓MA = R185 667,45 ✓A Annual taxable income = R2 475 566 – R185 667,45 ✓MCA = R2 289 898,55 ✓CA	1MA multiplying correct values 1A simplification 1MCA subtracting values 1CA simplification (4)	F L2 M
2.1.4	MTC = R728 + (246 ×4) ✓RT ✓MA = (728 + 984) × 12 ✓MA = R20 544	1RT 728 and 246 1 MA multiplying 246 by 4 1MA adding and multiplying by 12 (3)	F L2 M

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.1.5	Tax payable ✓RT = 644 489 + 45% of taxable income above 1 817 000 ✓SF = 644 489 + 0,45 (2 289 898,55 – 1 817 000) = 644 489 + 0,45(472 898,55) = 644 489 + 212 804,35 ✓CA ✓MA ✓MA = 857 293,35 – 17 235 – 9 444 – 20 544 = 810 070,35 ✓CA Her claim is not valid ✓O	CA from 2.1.3 and 2.1.4 **1RT correct bracket** 1SF substitution 1CA simplifying 1MA subtracting both rebates 1MA subtracting **MTC** 1CA simplification 1O Conclusion (7)	F L4 D
2.1.6	They receive 3 rebates ✓✓A OR Their total rebates is higher ✓✓A	2A reason (2)	F L4 E
2.2.1	✓A ✓MA ✓A Total cost = R450 + (number of minutes – 100) × R1,40	1A constant amount 1MA minutes minus 100 1A multiplying by the tariff (3)	F L2 E
2.2.2 (a)	✓SF D = R450 + (100 – 100) × R1,40 = R450 ✓CA	**CA from 2.2.1** 1SF correct substitution 1A value of A (2)	F L2 M

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.2.2 (b)	✓SF R1990 = R450 + (**E** – 100) × R1,40 R1990 – R450 = (**E** – 100) × R1,40 $\frac{R1\,540}{R1,40} = \frac{(E - 100) \times R1,40}{R1,40}$ ✓MA R1 100 = **E** – 100 R1 100 + 100 = **E** **E** = R1 200 ✓CA OR ✓RT **E** = R2 700 ÷ R2,25 ✓MA = R1 200 ✓CA	**CA from 2.2.1** 1SF correct substitution 1MA dividing by R1,40 1CA value of E 1RT correct values 1MA dividing by R2,25 1CA value of E (3)	F L2 M
2.2.2 (c)	F = R2,25 × 200 ✓MA = R450 ✓A	1MA multiplying correct values 1A value of F **AO** (2)	F L2 E

Q/V	Solution/ Explanation	T/L
2.2.3		F L2 M
	1A for the first 3 points plotted correctly 1A for other 3 points plotted correctly 1CA joining points	(3)
		[33]

QUESTION/*VRAAG* 3 [20 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.1.1	Circuit 2 ✓✓A	1A correct circuit (2)	D L1 D
3.1.2	70,5 ✓✓A	2A correct answer (2)	D L2 E
3.1.3	Range = max- min = 95 – 3✓ RT✓MA = 92 ✓CA **Using circuit 2 or 3 Max = 2/3 marks**	1RT correct values 1MA subtracting values 1CA simplification **AO** (3)	D L3 E
3.1.4	IQR = Q3 – Q1 ✓SF 43,25 = Q3 – 28,25 ✓RT 43,2 + 28,25 = Q3 ✓S 71,5 = Q3✓CA The statement is correct ✓O **Using circuit 2 or 3 Max = 3/5 marks**	1RT value of Q1 1SF substitution 1MA changing subject of formula 1CA simplification 1O conclusion (5)	D L4 D
3.2.1	Growth chart ✓✓A	2A correct name (2)	D L1 E
3.2.2	2 to 20 years ✓✓RT	2A correct age group (2)	D L1 M
3.2.3	25th and 50th ✓✓A	2A correct percentiles (2)	D L2 M
3.2.4	✓A 90% of all other girls her age are below this learner and 10% of all other girls her age are above this learner. ✓A	1A 90% are below 1A 10% are above (2)	D L4 D
			[20]

QUESTION/*VRAAG* 4 [27 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
4.1.1	numerical ✓✓A	2A correct answer (2)	D L1 M
4.1.2	✓RT R83 000 ✓A	1RT correct salary 1A salary written in full (2)	D L1 M
4.1.3	✓A $\text{mean} = \left(\frac{G+233+208+166+150+125+100+83+75+70}{10}\right) \times 1000$ $1462 = \left(\frac{G+1211}{10}\right) \times 1000$ ✓MA $1\,462\,000 \times 10 = G + 1211\,000$ $14\,620\,000 = G + 1211\,000$ ✓MA $G = 14\,620\,000 - 1\,211\,000$ $G = 13\,409\,000$ ✓CA	1A mean concept 1MA multiplying by 10 1MA changing the subject of the formula 1CA answer (4)	D L3 M
4.1.4	No Mode ✓✓A	2A answer (2)	D L2 D
4.1.5	$\frac{6}{10}$ ✓A = 0,6 ✓CA	1A correct numerator and denominator 1CA simplification **AO** (2)	P L2 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.1.6	Top 5 salaries $= \frac{13409+233+208+167+150 \checkmark MA}{14620 \checkmark MA} \times 100 \checkmark MA$ $= \frac{14167}{14620} \times 100$ $= 96,9\% \checkmark CA$ OR Top 5 salaries = 13409 + 233 + 208 + 167 + 150 ✓MA = 14 167 000 ✓CA Total salaries $= 14\ 620\ 000 \times \frac{1}{2}$ ✓MA = 7 310 00 ✓CA	**CA from 4.1.3** 1MA adding top 5 salaries 1MA dividing by total salaries 1MA multiplying by 100 1CA simplification 1MA adding top 5 salaries 1CA simplification 1MA multiplying by $\frac{1}{2}$ 1CA simplification (4)	D L3 E
4.2.1	Income before deductions ✓✓O	2O correct explanation (2)	F L1 E
4.2.2	Number of months = 20 × 12 ✓MA = 240 ✓A	1MA multiplying years by 12 1A number of months **AO** (2)	F L2 E
4.2.3	Real cost of loan = R22 500 ✓SF × 240 + R1 207,50 ✓SF =R5 401 207,50 ✓CA	1SF substituting monthly repayments 1SF substituting initiation fee 1CA simplification (3)	F L2 E
4.2.4	Home loan amount = R2 326 207 – R250 000 ✓MA = R 2 076 207 ✓CA The claim is incorrect ✓O	1MA subtracting correct values 1CA simplification 1O conclusion (3)	F L4 E
			[27]
			Total marks:[100]