



**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**SEPTEMBER 2023**

**MATHEMATICAL LITERACY P1  
MARKING GUIDELINE**

**MARKS: 150**

<b>Symbol</b>	<b>Explanation</b>
<b>M</b>	Method
<b>MA</b>	Method with accuracy
<b>CA</b>	Consistent accuracy
<b>A</b>	Accuracy
<b>C</b>	Conversion
<b>S</b>	Simplification
<b>RT/RG/RM</b>	Reading from a table/a graph/a map
<b>F</b>	Choosing the correct formula
<b>SF</b>	Substitution in a formula
<b>J</b>	Justification
<b>P</b>	Penalty, e.g., for no units, incorrect rounding off etc.
<b>R</b>	Rounding Off/Reason
<b>AO</b>	Answer only
<b>NPR</b>	No penalty for correct rounding

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This marking guideline consists of 9 pages.

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<b>QUESTION 1 [30 MARKS]</b>			
<b>Ques.</b>	<b>Solution</b>	<b>Explanation AO: FULL MARKS</b>	<b>T&amp;L</b>
1.1.1	Bank D ✓✓RT	2RT identify correct bank (2)	F L1
1.1.2	ATM withdrawal ✓✓RT	2RT (2)	F L1
1.1.3	$R1\ 600 - R1\ 250 = R350$ ✓M $\therefore R1,85 \times \left(\frac{350}{100}\right)$ $= R1,85 \times 4$ ✓MA $= R7,40$ ✓A	1M for subtracting 1MA multiplying correct value 1A answer (3)	F L1
1.1.4	50% or B ✓✓A	2A answer (2)	P L1
1.2.1	Total = $30\ 980\ 110 - (25\ 085\ 330 + 2\ 737\ 987 + 2\ 396\ 679)$ ✓M $= 760\ 114$ ✓A	1M subtracting correct values 1A answer (2)	D L1
1.2.2	Two million, six hundred and one thousand, nine hundred and thirty-two ✓✓A	1A correct words (2)	D L1
1.2.3	$\% = \frac{25\ 085\ 330}{30\ 980\ 110} \times 100$ ✓RT ✓M $= 80,97\%$ ✓A	1RT correct values 1M multiplying by 100 1A percentage (3)	D L1
1.2.4	Numerical ✓✓A	2A correct answer (2)	D L1
1.3.1	Total = $R249,95 + (50\% \times R135,95)$ ✓MA $= R249,95 + R67,98$ ✓M $= R317,93$ ✓A	1 MA multiplying correct value by 50% 1M adding correct values 1A correct total (3)	F L1
1.4.1	Facebook ✓✓RT	2RT correct social media platform (2)	D L1
1.4.2	Bar graph ✓✓A	2A correct graph (2)	D L1
1.4.3	Difference = $1\ 309$ million – $200$ million ✓RT ✓M $= 1\ 109$ million ✓CA	1RT correct values 1M subtraction 1CA difference (3)	D L1
1.4.4	Instagram ✓✓RT	2RT correct social media platform (2)	D L1
		<b>[30]</b>	

QUESTION 2: FINANCE [35 MARKS]			
Ques.	Solution	Explanation/Marks AO: FULL MARKS	T&L
2.1.1	$\% \text{ discount} = \frac{\sqrt{RT}}{13\,999} \times 100 \quad \checkmark M$ $= 3,57\% \quad \checkmark CA$	1RT correct values 1M multiplying by 100 1CA simplification <b>Accept 3,6%</b> (3)	F L2
2.1.2	$\text{Deposit} = \frac{18}{100} \times 13\,499$ $= R2\,429,82 \quad \checkmark M$ $\text{Outstanding balance} = R13\,499 - R2\,429,82$ $= R11\,069,18 \quad \checkmark M$ $\text{Total due} = \left( \frac{16,25}{100} \times R11\,069,18 \times 1 \text{ yr} \right) + R11\,069,18 \quad \checkmark MA$ $= R1\,798,74 + R11\,069,18$ $= R12\,867,92 \quad \checkmark A$ $\text{Monthly payment} = \frac{R12\,867,92}{12} \quad \checkmark M$ $= R1\,072,32 \quad \checkmark CA$ $\therefore \text{No, it will not be enough.} \quad \checkmark O$	1M calculating deposit  1M outstanding balance  1MA multiplying correct value by percentage  1A total due  1M divide by 12  1CA final answer  1O reason (7)	F L4
2.1.3	$\text{Mrs Rudolph} = \frac{3}{8} \times R13\,499 \quad \checkmark MA$ $= R5\,062,13 \quad \checkmark CA$	1MA correct ratio method 1M multiplying by cash price 1CA answer (3)	F L2

Ques.	Solution	Explanation	T&L
2.2.1	Difference = R21,40 – R20,75 ✓MA = R0,65 ✓A	1MA subtracting correct values 1A correct answer (2)	F L1
2.2.2	Cost = R21,40 + R2,06 ✓MA = R23,46 ✓A	1MA adding correct values 1A simplification (2)	F L2
2.2.3	Total fuel used: = (2,2ℓ × 2,5 hrs) × 2 ✓M = 11 ℓ per day ✓A  11ℓ × 31 = 341ℓ per month ✓CA  Total cost = R20,45 × 341ℓ  = R6 973,45 ✓CA	1M fuel per session 1A fuel per day  1CA amount of fuel per month  1CA cost for the month (4)	F L3
2.3.1	0,3 kℓ ✓✓RT	2RT correct value (2)	F L2
2.3.2	R28,96 ÷ 1,15 ✓MA = R25,18  VAT = R28,96 – R25,18 ✓M = R3,78 ✓A	1M dividing by 1,15  1M subtracting  1A total VAT (3)	F L2
2.3.3	Cost: ✓M Step 1: 0,3 kℓ × R20,81 = R6,24 ✓A Step 2: 0,2 kℓ × R31,80 = R6,36 ✓CA Step 3: 0,23 kℓ × R63,60 = R14,63 ✓CA  Total = R27,23 × 1,15 ✓M = R31,31 ✓CA  ∴ Incorrect/Invalid ✓O  <b>OR</b> Cost: ✓M Step 1: 0,3 kℓ × R20,81 = R6,24 ✓A Step 2: 0,2 kℓ × R31,80 = R6,36 ✓CA Step 3: 0,23 kℓ × R63,60 = R14,63 ✓CA  VAT = R27,23 × 15% = R4,0845 ✓CA  Total = R27,23 + R4,0845 = R31,31 ✓CA  ∴ Incorrect/Invalid ✓O	1M step 1 1A step 1 1CA step 2 1CA step 3  1M adding VAT 1CA total including VAT 1O statement  1M step 1 1A step 1 1CA step 2 1CA step 3  1CA adding VAT  1CA cost  1O opinion (7)	F L4  F L4
2.3.4	Holidays, therefore home more often. Visitors during holidays. ✓✓O Any valid reason	2O reason (2)	F L4
		[35]	

QUESTION 3 [31 MARKS]			
Ques.	Solution	Explanation	T&L
3.1.1	Total: $\checkmark$ M $101\,447 - (48\,319 + 8\,542 + 7\,987 + 14\,135 + 4\,374 + 9\,114)$ $= 101\,447 - 92\,471$ $= 8\,976$ million <b>OR</b> $8\,976\,000\,000$ $\checkmark$ CA	1M subtracting correct values 1CA simplification (2)	D L2
3.1.2	General dealers $\checkmark\checkmark$ RT	2RT correct retailer (2)	D L1
3.1.3	$14\,275,86 = \frac{92\,747 + A}{7}$ $\checkmark$ SF $14\,275,86 \times 7 = 92\,747 + A$ $\checkmark$ M $99\,931,02 - 92\,747 = A$ $\checkmark$ M $7\,184,02 = A$ $\checkmark$ CA $\therefore A = 7$ billion $\checkmark$ R	1SF substitution 1M multiplying 1M subtracting 1CA simplification 1R rounding off to the nearest billion (5)	D L3
3.1.4	Median: $\checkmark$ M $8\,298 ; 8\,462 ; \mathbf{8\,542} ; \mathbf{8\,607} ; 8\,978 ; 9\,050$ $\checkmark$ RT $= \frac{8\,542 + 8\,607}{2}$ $\checkmark$ M $= 8\,574,5$ million <b>OR</b> $8\,574\,500\,000$ $\checkmark$ CA	1M correct order 1RT correct values in order 1M median concept 1CA simplification (4)	D L2
3.1.5	$42\,716 : 7\,987$ $\checkmark$ RT $1 : 0,19$ $\checkmark$ A <b>OR</b> $5,35 : 1$	1RT correct values 1A simplification to unit ratio (2)	D L2
3.1.6	% change $= \frac{101\,113 - 98\,502}{98\,502} \times 100\%$ $\checkmark$ RT $\checkmark$ RT $\checkmark$ MA $= 2,65\%$ $\checkmark$ CA	1RT correct value April 1RT correct value Sept 1MA correct % calculation 1CA simplification (4)	D L2

Ques.	Solution	Explanation	T&L
3.1.7	$\frac{5}{42} \checkmark \text{RT} \checkmark \text{RT}$ $= 0,119 \checkmark \text{R}$	1RT numerator 1RT denominator 1R rounding off to 3 decimal places (3)	P L2
3.2.1	$50 + \text{years} \checkmark \checkmark \text{RT}$	2RT correct age group (2)	D L1
3.2.2	$\frac{785}{1\,000} \checkmark \text{RT}$ $= \frac{157}{200} \checkmark \text{S}$	1RT correct percentage 1S simplification (2)	D L2
3.2.3	$1; \underline{3}; 3,45; 4; \underline{4,2}; 6,55; \underline{20}; \underline{23}; 36 \checkmark \text{M}$ $Q1 = \frac{3 + 3,45}{2}$ $= 3,225 \checkmark \text{M}$ $Q3 = \frac{20 + 23}{2}$ $= 21,5 \checkmark \text{M}$ $\text{IQR} = Q3 - Q1$ $= 21,5 - 3,225 \checkmark \text{M}$ $= 18,28\% \checkmark \text{CA}$	1M values in correct order and finding median  1M for Q1  1M for Q3  1M subtracting  1CA answer  (5)	D L3
		(5)	<b>[31]</b>

<b>QUESTION 4 [28 MARKS]</b>			
<b>Ques.</b>	<b>Solution</b>	<b>Explanation</b>	<b>T&amp;L</b>
4.1.1	B ✓✓RT	2RT correct answer (2)	F L1
4.1.2	Cost = 8000 + 80 × number of people ✓A ✓A	2A correct answer (2)	F L2
4.1.3	The point where both venues cost exactly the same for the same number of people. ✓A	1A cost the same 1A same amount of people (2)	F L1
4.1.4	Venue 2: R180 × 180 guests ✓M = R32 400 ✓A  Venue 1: R8000 + R80 × 180 ✓M = R22 400 ✓A  Difference = R32 400 – R22 400 = R10 000 ✓CA  Valid ✓O	1M multiply rate by guests  1A simplification 1M correct multiplication  1A simplification 1CA difference 1O opinion (6)	F L4
4.2.1	Body Mass Index ✓✓A	2A correct answer (2)	D L1
4.2.2	Outlier ✓✓A	2A correct answer (2)	D L1
4.2.3	Scatterplot ✓✓A	2A correct graph (2)	D L1
4.2.4	50 kg ✓✓RT	2RT weight (2)	D L2
4.2.5	$\text{BMI} = \frac{\text{weight in kg}}{\text{height in m}^2}$ $= \frac{60 \text{ kg}}{(148 \text{ cm})^2} \checkmark \text{RT} \checkmark \text{RT}$ $= \frac{60 \text{ kg}}{(1,48 \text{ m})^2} \checkmark \text{C}$ $= 27,39 \text{ kg/m}^2 \checkmark \text{CA}$  ∴ Overweight ✓O	1RT weight 1RT height in cm  1C height in m  1CA correct BMI  1O weight status (5)	D L3
4.2.6	$\frac{5}{12} \checkmark \text{RT} \checkmark \text{RT}$  = 41,7% ✓R	1RT numerator 1RT denominator 1R correct percentage rounded to 1 dec. place (3)	P L2
		<b>[28]</b>	

<b>QUESTION 5: FINANCE, DATA HANDLING [26 MARKS]</b>			
<b>Ques.</b>	<b>Solution</b>	<b>Explanation</b>	<b>T&amp;L</b>
5.1.1	South African Revenue Services ✓✓A	2A correct name (2)	F L1
5.1.2	Minimum amount that an individual must earn in order to pay tax ✓✓O <b>OR</b> up to that amount you do not pay tax <b>OR</b> if you earn less than that amount you do not pay tax	2O correct explanation (2)	F L1
5.1.3	Annual Taxable Income = Gross – Pension – Charity  Pension = $7,5\% \times R46\,523,16$ = R3 489,24 ✓M  Tax Income = $R46\,523,16 - R3\,489,24 - R1\,600$ ✓M = R41 433,92  Annual Tax Income = $R41\,433,92 \times 12$ ✓M = R497 207,04 ✓CA	1M calculating pension  1M subtracting values from gross  1M multiplying by 12  1CA simplification (4)	F L3
5.1.4	Annual Tax ✓RT ✓SF = $115\,762 + 36\% (502\,185,60 - 488\,700)$ = $115\,762 + 36\% (13\,485,60)$ = $115\,762 + 4\,854,82$ = $120\,616,82 - 16\,425$ ✓M = R104 191,82 ✓CA  Quarter of taxable income = $R502\,185,60 \times \frac{1}{4}$ ✓M = R125 546,40 ✓A  <b>∴ Invalid</b> ✓O  <b>OR</b>  $\frac{104\,191,82}{502\,185,60} \times 100$ ✓M  = 20,74% ✓A	1RT correct tax bracket 1SF subtracting correct values  1M subtracting rebate 1CA simplification  1M multiplying by quarter 1A answer  1O invalid (7)	F L4



Ques	Solution	Explanation	T&L
5.2.1	NZ\$ : R 0,088205 : 1 ✓M  $\therefore \frac{1}{0,088205} \checkmark \text{MA}$  = NZ\$ 1: R11,337 ✓A	1M correct values 1MA dividing correct values  1A simplification  (3)	F L3
5.2.2	Total cost: = 4 880 + 6 860 ✓MA = NZ\$11 740 ✓A  11 740 × 11,337 ✓M = R133 096,38 ≈ R133 100 ✓R  <p style="text-align: center;"><b>OR</b></p> Total cost: = 4 880 + 6 860 ✓MA = NZ\$11 740 ✓A  11 740 ÷ 0,088205 ✓M = R133 099,03 ≈ R133 100 ✓R	1MA adding correct values 1A correct answer  1M multiplying by rate 1R rounding to nearest 100  <p style="text-align: center;"><b>OR</b></p> 1MA adding correct values 1A correct answer  1M dividing by rate 1R rounding to nearest 100 (4)	F L2
5.2.3	$500\,000 \times 1,0875 = \text{NZ\$ } 543\,750 \checkmark \text{A}$  $543\,750 \times 1,0875 = \text{NZ\$ } 591\,328,13 \checkmark \text{CA}$  <p style="text-align: center;"><b>OR</b></p> $\checkmark \text{MA}$ Interest = $500\,000 \times 8,75\% = 43\,750 \checkmark \text{M}$ Balance after 1 <sup>st</sup> year = $500\,000 + 43\,750 = 543\,750 \checkmark \text{A}$ 2 <sup>nd</sup> year interest = $543\,750 \times 8,75\% = 47\,578,13$ Total = $543\,750 + 47\,578,13 = \text{NZ\$ } 591\,328,13 \checkmark \text{CA}$	1M correct method 1MA multiplying by correct rate 1A amount after 1 year 1CA final amount after 2 years  (4)	F L3
		<b>[26]</b>	
<b>TOTAL: 150</b>			