



NATIONAL SENIOR CERTIFICATE

GRADE 12

JUNE 2022

MATHEMATICAL LITERACY P1 MARKING GUIDELINE

MARKS: 100

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

This marking guideline consists of 8 pages.

MARKING GUIDELINES**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.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra incorrect item presented.

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 nasienriglyn toegepas, maar dit hou by die tweede berekeningsfout op.*
- *Wanneer 'n kandidaat aflees van 'n grafiek, tabel, uitlegplan en kaart en ekstra antwoorde gee, penaliseer vir elke ekstra item.*

QUESTION 1 [20 MARKS]			
Que	Solution	Explanation/Marks AO: FULL MARKS	T/L
1.1.1	$\frac{18,25}{100} = \frac{1\ 825}{10\ 000} \quad \checkmark M$ $= \frac{73}{400} \quad \checkmark A$	1M fraction 1A answer in a reduced form (2)	F L1 *
1.1.2	$\% \text{ of price} = 100 - 18,25\%$ $= 81,75\% \quad \checkmark M$ $\text{Price} = \frac{81,75}{100} \times 380 \quad \checkmark M$ $= R310,65 \quad \checkmark CA$ <p style="text-align: center;">OR</p> $\text{Reduction} = \frac{18,25}{100} \times 380$ $= R69,35 \quad \checkmark M$ $\text{Price} = R380 - 69,35 \quad \checkmark M$ $= R310,65 \quad \checkmark CA$	1M subtraction 1M % calculation 1CA answer OR 1M % calculation 1M subtraction 1CA answer (3)	F L1 *
1.2.1	$\text{Difference} = R469 - (-R447) \quad \checkmark CA$ $= R916 \text{ million} \quad \checkmark RT$	1 RT for the two correct values 1 CA answer (2)	F L1
1.2.2	$\text{Total} = 265 + 277 + 326 + 390 + 447 + 458 + 486 - (469 + 300) \quad \checkmark M$ $= 1880 \text{ million} \quad \checkmark CA$	1M addition (+) and subtraction (-) of the values 1CA (2)	F L1
1.3.1	$\text{Weekend wage rate} = \frac{3}{2} \times 25 \quad \checkmark MA$ $= R37,50 \quad \checkmark A$	1MA multiplication 1A answer (2)	F L1 *
1.3.2	$\text{Earnings} = 6 \times 25 + 37,50 \times 4 \quad \checkmark MA$ $= R300 \quad \checkmark CA$	1M multiplications 1MA addition 1CA answer (3)	F L1 *
1.4.1	Discrete $\checkmark \checkmark A$	2A answer (2)	D L1
1.4.2	Game $\checkmark \checkmark RT$	2RT answer (2)	D L1
1.4.3	Total games = 4 + 6 + 5 + 4 + 1 + 2 + 2 = 24 games $\checkmark M \quad \checkmark CA$	1M adding the games 1CA answer (2)	D L1
		[20]	

QUESTION 2 [18 MARKS]			
Que	Solution	Explanation/Marks AO: FULL MARKS	T/L
2.1.1	Time 4 hours ✓✓RT	2RT (2)	F L2
2.1.2	From graph: 2 welders complete 1 frame in 4 hours ✓M 2 : 1 20 : ? frame in 4 hours Frames = $\frac{20 \times 1}{2}$ ✓✓M = 10 frames ✓ A OR $n \times t = 8$ $20 \times t = 8$ ✓SF $t = 8/20$ = 0,4 hours to make 1 frame by 20 welders ✓S In four hours = $4/0,4$ ✓M = 10 frames ✓A	1M value from graph 1M numerator 1M denominator 1A answer OR 1SF substitution 1S simplification for 2,5 frames done in 1 hour by 20 welders 1M multiplication 1A answer (4)	F L3
2.2.1	$A = \frac{\sqrt{M} \cdot 28 - 25,81}{25,81} \times 100\%$ ✓MA = 8,485% = 8,5% ✓CA	1M correct values for numerator and denominator M % calculation 1CA (3) (NPR)	F L2
2.2.2	Cost: Up to 6 kℓ = R0 = R0 ✓M 6 – 25 kℓ = 19 k × R23,60 = R448,40 ✓M 25 – 30 kℓ = 5 kℓ × R32,20 = R161,00 ✓M TOTAL COST = $R448,40 + R161,00$ = R606,40 ✓M ✓CA	1M cost in block 1 1M cost in block 2 1M cost in block 3 1M addition all costs 1CA answer (5)	F L3
2.3.1	Salary B = R3 192,05 + 15 761,80 ✓M = R18 953,85 ✓CA	1M adding the two balances 1 CA answer (2)	F L2
2.3.2	Bank fees for March = 42,37 + 17,47 + 100,88 ✓M = R160,72 ✓CA	1M adding fees of March 1CA answer (2)	F L1
		[18]	

QUESTION 3 [21 MARKS]			
Quest.	Solution	Explanation/Marks AO: FULL MARKS	T/L
3.1	2020 ✓A Reason: Covid-19 pandemic ✓J	1A year 1J reason (2)	D L1
3.2	✓M C = 25 285,1 – (2093,5+2092,8+2249,4+ 1988,8+1750,5 +1964,7+2067,1+2204,4+2308,0+2267,8+2493,4) = 1804,7 ✓M ✓CA	1M subtracting from 25 285,1 1M addition of all other values 1CA answer (3)	D L2 *
3.3	descending order: ✓RT 2493,4; 2308,0; 2267,8; 2249,4; 2204,4; 2093,5; 2092,8 2067,1; 1988,8; 1964,7; 1804,7; 1750,5 ✓CA	1RT all values including value from 3.2 1CA order with value from 3.2 (2)	D L2 *
3.4	✓RT Range = 2 262,3 – 33,8 ✓M = 2 228,5 million ✓CA	1RT highest and lowest values 1M concept of range 1CA answer (3)	D L2
3.5	Mean income for 2018 = $\frac{24846,4}{12} = 2\,070,53$ million ✓A Mean income for 2020 = $\frac{98\,18,5}{12} = 818,21$ million ✓A Double mean income for 2020 = $818,21 \times 2 = 1636,42$ ✓M Million Mean income for 2018 (2 070,53) is greater than double mean income for 2020 (1636,42) Statement Valid ✓J	1M concept of mean 1A mean for 2018 1A mean for 2020 1M comparing values of mean 2018 and double mean income for 2020 1J valid statement. NPR (6)	D L4 *
3.6	From 2018 December income dropped right through up to July 2019; then increased from August 2019 to December 2019. It remained high up to March 2020. ✓J Then it dropped drastically in from April 2020 and remained low in 2020. ✓J	1J justification for the period Dec 2018 to July 2019 1J justification for the period August 2019 to 2020 (2)	D L4
3.7	May ✓A and June ✓A	1A first months 1A second months. CA from 3.2 (2)	D L2
			[20]

QUESTION 4 [20 MARKS]			
Que	Solution	Explanation/Marks AO: FULL MARKS	T/L
4.1.1	Values of dependent variable at break-even point Income = R300 ✓RT Expenses = R300 ✓RT	1RT value for income 1RT value for expenses (2)	F L2
4.1.2	Total sales in a week = 37 packets ✓RT From Graph: Income = R555 ✓RT Expenses = R385 ✓RT Profit = R555 – R385 = R170 ✓CA OR Total sales = 37 ✓RT Income = $37 \times 15 = R555$ ✓SF Expenses = $200 + 37 \times 5 = R385$ ✓SF Profit = $R555 - R385 = R170$ ✓CA	1RT adding sales from table 1RT reading income from graph 1RT expenses from graph 1CA answer for profit OR 1RT total sales 1SF for income 1SF for expenses 1CA answer for profit (4)	F L2
4.2.1	Year 2009 ✓✓RT	2RT for the year (2)	F L2
4.2.2	Fees in 2015 = $1,093 \times R12\,500 = R13\,662,50$ ✓M Cost of fridge in 2015 = $1,04 \times R12\,500 = R13\,000$ ✓M Difference = $R13\,662,50 - R12\,500 = R1\,162,50$ ✓CA	1M value from multiplication with education inflation rate. 1M value from multiplication with general inflation rate 1CA answer (3)	F L4
4.2.3	The graph shows education has constantly outstripped general inflation. ✓✓J	2J justification as from graph. (2)	F L4
4.3.1	Arrangement of currencies: £; €; \$; P; R; ¥ ✓RT ✓A	1RT all currencies 1A order according to strength (2)	F L3
4.3.2	$1\text{¥} = R0,1383$ $3974,85 = R?$ Cost of 1 in Rands = $3974,85 \times 0,1383$ ✓M $= R549,72$ ✓A Cost of 500 DVD players = $500 \times 549,72$ $= R274\,860,88$ ✓CA	1M converting the Japanese yens to Rands 1A cost of one DVD 1CA answer for cost of 500 DVDs (3)	F L2
		[18]	

QUESTION 5 [25 MARKS]			
Quest.	Solution	Explanation/Marks AO: FULL MARKS	T/L
5.1.1	Tax bracket = 4 ✓✓RT	2RT bracket (2)	F L1
5.1.2	R128 650 ✓✓RT	2RT value of threshold (2)	F L2
5.1.3	<p>Monthly income = R35 455</p> <p>Annual income = R35 455 × 12 = R425 460,00 ✓MA</p> <p>Pension: 7,5% of R425 460 = $\frac{7,5}{100} \times R425 460,00$ = R31 909,50 ✓A</p> <p>Taxable Income = R425 460,00 – R31 909,50 = R393 550,50 ✓CA</p> <p>Tax = R67 144 + $\frac{31}{100} \times (393 550,50 - 321 600)$ ✓M = R67 144 + $\frac{31}{100} \times 71 950,50$ = R67 144 + 22 304,655 = R89 448,655 ✓CA</p> <p>Tax less the rebates = R89 448,655 – (R14 958 + R8199) ✓RT Annual tax payable = R66 291,655 ✓M</p>	<p>1MA multiplication by 12 and annual income 1A the annual pension</p> <p>1CA taxable income 1M use of correct tax bracket</p> <p>1CA tax payable before rebates</p> <p>1RT Total value of rebates 1M subtracting rebates and tax after rebates (7)</p>	F L4
5.2.1	<p>✓RT</p> <p>2,27%; 5,04%; 5,05%; 5,90%; 6,68%; 7,24%; 13,38%; 16,15%; 38,28%. ✓M</p> <p>Median value = 6,68% giving EC ✓CA</p>	<p>1RT all values from graph</p> <p>1M arranging in order descending or ascending</p> <p>1CA median value: EC (3)</p>	D L2
5.2.2	<p>$Q1 = \frac{5,04+5,05}{2}$ ✓M = 5,045% ✓A</p> <p>$Q3 = \frac{13,38+16,15}{2}$ = 14,765% ✓A</p> <p>IQR = Q3–Q1 = 14,765% – 5,045% ✓M = 9,72% ✓CA</p>	<p>1M concept of getting Quartile 1 1A for Q1</p> <p>1A for Q3</p> <p>1M method of subtracting Q3-Q1 1CA answer (5)</p>	D L3
5.2.3	Probability is the chance that an event is likely to happen. ✓✓A	2A explanation (2)	P L1

5.2.4	Probability for GP = 0,3828 ✓CA Probability for EC = 0,0668 ✓CA Probability for a car to be in GP OR EC = 0,3828 + 0,0668 = 0,4496 ✓A	1CA converting 5 to decimal for QP 1CA converting to decimal for EC 1A answer (3)	P L3
		[24]	
	TOTAL:		100