education

MPUMALANGA PROVINCE

REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

NASIONALE SENIOR SERTIFIKAAT

GRADE / *GRAAD* 12

MATHEMATICAL LITERACY P1 /

WISKUNDIGE GELETTERDHEID V1

SEPTEMBER 2023

MARKING GUIDELINES / *NASIENRIGLYNE*

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 /RG /RM	Reading from the table/graph/map/diagram/document *Lees vanaf tabel/grafiek/kaart/diagram/dokument*
SF	Correct substitution in a formula/*Korrekte vervanging in 'n formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
P	Penalty e.g. for no units, incorrect rounding off, etc *Penalisasie, bv. Vir geen eenhede, verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for rounding/*Geen penalisasie vir afronding nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*

These marking guidelines consist of 13 pages.

Hierdie nasienriglyne bestaan uit 13 bladsye.

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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 item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake he loses one mark.
- A conclusion mark can only be given if relevant calculations precedes it.

LET WEL:
- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.*
- *Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas; dit hou egter op by die tweede berekeningsfout.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *Afronding tel as 'n afsonderlike punt.*
- *Die algemene beginsel van merk as 'n leerder een fout maak verloor hy een punt.*
- *'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan.*

QUESTION/*VRAAG* 1 [30 MARKS/*PUNTE*]		**ANSWER ONLY FULL MARKS**	
Q/V	**Solution/Oplossing**	**Explanation/Verduideliking**	**T/L**
1.1.1	17238723 ✓✓RT	2RT correct month (2)	F L1 E
1.1.2	Total income that Mrs T Ngomane received per ✓✓A month after all the deduction were made. / *Totale inkomste wat mev T Ngomane per maand ontvang het nadat al die aftrekkings gemaak is.*	2A correct definition (2)	F L1 E
1.1.3	Total deduction / *Totale aftrekkings* ✓RT = R8 780,74 + R2 753,92 + R2 131,00 +R16,50 + R109, 24 ✓M = R13 791,40	1RT correct values 1M adding (2)	F L1 E
1.1.4	$\frac{4,5}{100}$ × R23 827,60 ✓MA = R1 072,24 ✓A	1MA multiplying by 4,5% 1A simplification (2)	F L1 E
1.1.5	Total notch amount / *Totale salariskerfbedrag* ✓RT = R36 719 × 12 ✓MA = R440 628	1RT correct value 1MA multiplying by 12 (2)	F L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.2.1	Continuous / *Kontinue* ✓✓A	2A correct classification (2)	D L1 E
1.2.2	Fisher ridge cave / *Fisher ridge grot* ✓✓RT	2RT correct cave (2)	D L1 E
1.2.3	Ascending order / *Stygende volgorde* ✓RT 212,1; 238,0; 242,0; 260,2; 264,5; 311,5; 318,0; 345,5; 376,7; 686,6 ✓A	1RT correct values 1MA ascending order (2)	D L1 E
1.2.4	Difference / *Verskil* = 345,5 – 260,2 ✓MA = 85,3 km ✓A	1MA subtracting correct values 1A simplification (2)	D L1 E
1.2.5	238,0 : 242,0 ✓RT 119 : 121 ✓CA	1RT correct values in correct order 1CA simplification (2)	D L1 M
1.2.6	5 ✓✓A	2A correct number (2)	D L1 E
1.3.1	Original Price / *Oorspronklike prys* = R99,99 + R30 ✓MA = R129,99 ✓A	1MA adding correct values 1A simplification (2)	F L1 E
1.3.2	Unit price / *Eenheidsprys* = R60 ÷ 4 ✓MA = R15 ✓A	1MA dividing R60 by 4 1A simplification (2)	F L1 E

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.3.3	Price of one chicken / *Prys van een hoender* = 1,25 kg × R59,99 ✓MA = R74,99 / R75,00 ✓A	1MA multiplying with 1,25 kg 1A simplification **NPR** (2)	F L1 E
1.3.4	Price of custard / *Prys van vla* = R48 × 2 ✓MA = R96 ✓A	1MA multiplying R48 by 2 1A simplification (2)	F L1 E
		[30]	

QUESTION / VRAAG 2 [28 MARKS / PUNTE]			
Q/V	**Solution/Oplossing**	**Explanation/Verduideliking**	**T/L**
2.1.1	$\frac{R220}{1,15}$ ✓MA = R191,30 ✓CA VAT / *BTW* = R220 – R191,30 = R28,70 ✓CA **OR** ✓RT R220 × $\frac{15}{115}$ ✓M = R28,70 ✓CA **OR** VAT / *BTW* = R220 – 220 × $\frac{100}{115}$ ✓MA = R220 – R191,30 ✓CA = R28,70 ✓CA	1MA divide correct value by 1,15 1CA calculating price excl. VAT 1CA total VAT **OR** 1RT correct value 1M multiply by $\frac{15}{115}$ 1CA total VAT **OR** 1MA multiply correct value by $\frac{100}{115}$ 1CA calculating price excl. VAT 1CA total VAT (3)	F L2 M
2.1.2a	Before / *Voor* 15:00: ✓MA ✓RT 2×R220 = R440 2×R165 = R330 1×R105 = R105 Total = R875 ✓CA After / *Na* 15:00: ✓RT 2 × *R*165 = *R*330 2 × *R*125 = *R*250 1 × *R*80 = *R* 80 Total/*Totaal* = R660 ✓CA ✓MCA Discount amount/*Afslag bedrag* = R875 – R660 = R215 ✓CA	1MA all three correct values 1RT three correct tariffs 1CA correct total 1RT three correct tariffs 1CA correct total 1MCA subtracting values 1CA simplification (7)	F L3 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.1.2b	✓CA % Saving / %Besparing $= \frac{R215}{R875} \times 100$ ✓M $= 24{,}6\%$ ✓CA	1CA correct fraction 1M multiplying by 100 1CA correct % saving (3)	F L2 M
2.1.3	Pensioners often live on grants/pension only; thus lower rates allow them to afford more things in life. / *Pensioenarisse leef dikwels slegs van toelaes/pensioen; laer tariewe laat dus toe dat hulle meer dinge in die lewe kan bekostig.* ✓✓O	2O Reason (2)	F L4 M
2.2.1	R641 900 ✓✓RT	2RT cash price (2)	F L1 E
2.2.2	✓A $\frac{11}{100} \times$R641 900 ✓M = R70 609 ✓CA	1A correct percentage 1M multiplying by cash price 1CA deposit (3)	F L1 E
2.2.3	✓MCA ✓MA Total = R70 609 + (R11 900 ×72) + R57 265,60 ✓M = R70 609 + R856 800 + R57 265,60 = R984 674,60 ✓CA	**CA from Question 2.2.2** 1MCA adding deposit 1MA multiplying 11900 by 72 1M adding residual 1CA simplification (4)	F L3 M
2.2.4	Difference / *Verskil* = R984 674,60 – R641 900 ✓MA = R342 774,60 ✓CA	**CA from Question 2.2.3** 1MA subtracting cash price 1A difference (2)	F L2 E
2.2.5	✓A Cash payment / *Kontant betaling* • No interest will be paid. / *Geen rente word betaal* ✓O **OR / *OF*** • No residual payment will be paid. / *Geen res-waarde word betaal nie.*	1A correct payment option 1O correct reason (2)	F L4 M
		[28]	

QUESTION / *VRAAG* 3 [29 MARKS]	**Only penalize once for omitting thousands**		
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.1.1	12/12 OR 12 December ✓✓RT	2RT correct day (2)	D L1 E
3.1.2	**A** = 133 514 – (16 423 + 24 319 + 22 248 + 20 344 + 17 042 + 19 694) ✓RT = 133 514 – 120 070 ✓M = 13 444 ✓CA **OR** **A** = 133 514 – 16 423 ✓RT - 24 319 - 22 248 - 20 344 - 17042 - 19 694 ✓M = 13 444 ✓CA	1RT correct values 1M subtracting correct values 1CA correct value **OR** 1RT correct values 1M subtracting correct values 1CA correct value (3)	D L1 M
3.1.3	Total steps / *Totale treë* = ✓MA 18234+18692+21549+19328+23190+26138+13189 = 140 320 ✓CA Daily average / *Daaglikse gemiddeld* $= \frac{140\,320}{7}$ ✓MCA = 20 045,7 ✓CA ≈ 20 046 ✓R	1MA adding correct values 1CA total steps 1MCA dividing total by 7 1CA correct average 1R correct rounding (5)	D L3 M
3.1.4	9% - 5% = 4% ✓MA $\frac{4}{100} \times 133\,514$ ✓MA = 5 340,56 ✓CA	1MA calculating 4% 1MA multiplying correct value 1CA total steps (3)	D L2 E
3.1.5	24 319 + 22 248 ✓MA = 46 567 ✓CA $\frac{46\,567}{133\,514} \times 100$ ✓M = 34,88% ✓CA No, her statement is not valid.✓O *Nee, haar stelling is nie geldig nie.*	1MA adding correct values 1CA correct total 1M concept of percentage 1CA correct % 1O verification (5)	D L4 D

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.2.1	One hundred and nineteen million six hundred ✓✓A thousand / Een h*onderd en negentien miljoen seshonderd duisend.*	2A correct words (2)	D L1 M
3.2.2	10,1% + 4,2% + 29,8% + 11,7% ✓M = 55,8% ✓CA	1M adding correct values 1CA correct percentage (2)	P L2 E
3.2.3	✓M 10% - 6,2% ✓RT = 3,8% ✓CA	1M subtracting 1RT correct values 1CA correct percentage (3)	D L2 E
3.2.4	✓RT $\frac{29,8}{100} \times 253\ 335\ 900$ ✓MA ✓CA = 75 494 098,2 ≈ 75 500 000 ✓R	1RT correct percentage 1MA multiply with correct value 1CA correct number 1R correct rounding (4)	D L2 M
		[29]	

QUESTION / *VRAAG* 4 [35 MARKS]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
4.1.1	✓RT 2 (15 620) + 15 148 ✓M = R46 388 ✓CA	1RT multiply correct fee by 2 1M adding correct fee 1CA correct total (3)	F L2 M
4.1.2	174 360; 175 051; 175 697; 176 640; **178 000**; 185020; 191 181; 194 148; 224 620 ✓M Median / *Mediaan* = 178 000 ✓A	1M arranging values in order 1A finding median (2)	D L2 E
4.1.3	Mean / *Gemiddeld* $= \frac{1\,388\,637+A}{9}$ ✓MA R172 093 $= \frac{1\,388\,637+B}{9}$ ✓MA (R172 093 × 9) – R1 388 637 = B ✓S **B** = R160 200 ✓CA	1MA adding correct values to R1 388 637 1MA concept of mean 1S multiply by 9 and subtract correct value 1CA mean (4)	D L3 M
4.1.4	$\frac{4}{9}$ ✓A ×100 ✓A = 44,44% ✓CA	1A numerator 1A denominator 1CA correct percentage (3)	P L2 E
4.1.5	% increase / *verhoging* $= \frac{178\,000-164\,470}{164\,470}$ ✓SF ✓A ×100% = 8,2264 ✓CA ≈ 8,2 ✓R	1SF correct substitution 1A denominator 1CA correct increase 1R correct rounding (4)	F L2 M
4.1.6	$\frac{7,5}{100}$ ×R176 640 ✓MA = R13 248 ∴R176 640+R13 248 ✓M = R189 888 ✓CA **OR** $\frac{107,5}{100}$ ✓MA ×R176 640 ✓RT = R189 888 ✓CA	1MA multiplying correct value by 7,5% 1M adding values 1CA correct fee **OR** 1MA multiplying 107,5% 1RT correct value 1CA correct fee (3)	F L2 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.1.7a	Money that Diego earned on an investment over a certain period of time at a certain rate. / *Geld wat Diego op 'n belegging oor 'n sekere tydperk teen 'n sekere koers verdien het.* ✓✓A	2A definition (2)	F L1 E
4.1.7b	1st year / *jaar*: $\frac{9{,}55}{100} \times$R150 000 ✓MA = R14 325 ✓A Total after 1 year / *Totaal na 1 jaar*: R150 000 + R14 325 = R164 325 ✓CA 9 months / *maande*: R164 325$\times \frac{9{,}55}{100} \times \frac{9}{12}$ ✓MA = R11 769,78 Total after 1 year, 9 months / *Totaal na 1jaar 9 maande*: R164 325 + R11 769,78 = R176 094,78 ✓CA Crawford College 2023 = R178 000 No, statement incorrect / *Nee, stelling nie korrek* ✓O **OR** 1st year / *jaar*: 1,0955×R150 000 ✓A ✓MA = R164 325 ✓A Interest rate for 9 months/ *Rentekoers vir 9 maande*: 9,55% ×9÷12 = 7,1625% ✓A 1,071625×R164 325 = R176 094,78 ✓CA Crawford College 2023 = R178 000 No, statement incorrect / *Nee, stelling nie korrek* ✓O	1MA calculating 9,55% 1A interest 1 year 1CA first year 1MA calculating 9 months 1CA total 1O verification **OR** 1A calculating 1,0955 1MA multiplying 1,0955 1A first year 1A calculating 7,1625% 1CA total 2nd year 1O verification (6)	F L4 M

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.2.1	✓A ✓A ✓A Cost / *Koste* = R2 000 + R5,06(d – 200km); where d = distance / *waar d = afstand*	1A fixed cost 1A rate per km 1A difference in km (3)	F L2 M
4.2.2	✓SF Alama cost / *koste* = R2 000 + R5,06 (944 – 200) = R5 764,64 ✓CA Enterprise cost / *koste* = R6,15 × 944 ✓SF = R5 805,60 ✓CA No, Alama is more cost effective / *Nee, Alama is die mees ekonomieste* ✓O	1SF substitution 1CA alama car cost 1SF substitution 1CA enterprise cost 1O verification (5)	F L4 D
		[35]	

QUESTION / *VRAAG* 5 [28 MARKS]			
Q/V	**Solution/Oplossing**	**Explanation/Verduideliking**	**T/L**
5.1.1	Manchester City ✓✓RT	2RT correct team (2)	D L1 E
5.1.2	$\frac{6}{10}$ ✓A ✓A = 0,6 ✓CA	1A correct numerator 1A correct denominator 1CA decimal (3)	P L2 E
5.1.3	✓M 19 100 000; 19 300 000; **27 100 000**; 30 200 000; 40 200 000; 53 000 000; 72 700 000; **179 000 000**; 364 000 000; 486 000 000 Q1 = 27 100 000 ✓A Q3 = 179 000 000 ✓A IQR / *IKO* = Q3 – Q1 = 179 000 000 – 27 100 000 ✓SF = 151 900 000 ✓CA = 152 000 000 ✓R	1M arranging values in order 1A finding Q1 1A finding Q3 1SF substituting into formula 1CA correct IQR 1R correct rounding **[omitting millions max 5]** (6)	D L3 M
5.1.4	0,051947 US $ = R1 ✓RT 55 000 000 $ = $\frac{55\,000\,000 \times 1}{0{,}051947}$ ✓MA = R1 058 771 440,12 ✓A **OR** 1 US $ = R19,250546 ✓RT 55 000 000 $ = $\frac{55\,000\,000 \times 19{,}250546}{1}$ ✓MA = R1 058 780 030 ✓A	1RT correct salary 1MA exchange rate concept 1A correct amount **OR** 1RT correct salary 1MA exchange rate concept 1A correct amount **[omitting millions max 1]** (3)	F L3 D
5.2.1	An amount of money that taxpayers can subtract directly from the taxes they owe, according to their age. / ✓✓A *'n Bedrag geld wat belastingbetalers direk kan aftrek van die belasting wat hulle skuld, volgens hul ouderdom.*	2A correct definition (2)	F L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
5.2.2	Annual tax / *Jaarlikse belasting* ✓A = R115 762 + $\frac{36}{100}$(R627 010 – R488 700) ✓SF = R115 762 + $\frac{36}{100}$(R138 130) = R115 762 + R49 791,6 = R165 553,60 ✓CA ✓MA Rebate / *Korting* = R165 553,60 – (16 425 + 9 000) = R140 128,60 ✓CA Medical credits / *Mediese krediete*: R140 128,60 – 12 (R694) ✓MA = R131 800,60 Per month / *Per maand* = $\frac{R131\ 800,60}{12}$ = R10 983,38 ✓CA Statement not valid / *Bewering is nie geldig* ✓O	1A correct tax bracket 1SF correct values in formula 1CA correct value 1MA subtract rebate values 1CA simplification 1MA subtract medical credit 1CA monthly tax 1O verification (8)	F L4 D
5.2.3	They receive 3 rebates. / *Hul kwalifiseer vir 3 kortings.* ✓✓O **OR** Their total rebate is higher. / *Hul totale kortings is hoër.* ✓✓O	2O opinion (2)	F L4 M
5.2.4	Gross annual salary 2021/*Bruto jaarlikse salaris 2021* = $\frac{R677\ 848,65}{1,058}$ ✓MA = R640 688,71 ✓CA **OR** Gross annual salary / *Bruto jaarlikse salaris* = $\frac{R677\ 848,65}{105,8/100}$ ✓MA = R640 688,71 ✓CA	1MA divide by 1,058 1CA correct salary **OR** 1MA divide by 105,8% 1CA correct salary (2)	F L2 D
		[28]	
		TOTAL/TOTAAL: 150	