



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/ NASIONALE SENIOR SERTIFIKAAT

GRADE/GRAAD 12

**MATHEMATICAL LITERACY P1/
WISKUNDIGE GELETTERDHEID V1**

NOVEMBER 2023

MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 150

Symbol/Kode	Explanation/Verduideliking
MA	Method with accuracy/Metode met akkuraatheid
MCA	Method with consistent accuracy/Metode met volgehoue akkuraatheid
CA	Consistent accuracy/Volgehoue akkuraatheid
A	Accuracy/Akkuraatheid
C	Conversion/Herleiding
S	Simplification/Vereenvoudiging
RT	Reading from a table/graph/document/diagram/Lees vanaf tabel/grafiek/dokument/diagram
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./Penalisering, bv. vir geen eenhede, verkeerde afronding, ens.
NPR	No penalty for correct rounding/Geen penalisering vir korrekte afronding nie
NPU	No penalty for omitting unit, but wrong unit is penalised/Geen penaliseringe indien die eenheid uitgelos is nie, maar wel indien 'n verkeerde eenheid gebruik word.
AO	Answer only/Slegs antwoord

**These marking guidelines consist of 16 pages and 3 pages of notes.
Hierdie nasienriglyne bestaan uit 16 bladsye en 3 bladsye met notas.**

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 one mark is deducted.
- A conclusion mark can only be given if relevant calculations precedes it.
- No penalty for rounding (NPR) if the first decimal is correct.

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, word een punt afgetrek.
- 'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan.
- Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie.

QUESTION/VRAAG 1 [29 MARKS/PUNTE] ANSWER ONLY FULL MARKS			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
1.1.1	Discrete / Diskreet ✓✓A	2A correct classification (2)	D L1 E
1.1.2	Twelve million nine hundred and twenty nine thousand nine hundred and thirty nine / Twaalf miljoen negehonderd nege en twintig duisend negehonderd nege en dertig ✓✓A	2A correct wording (2)	D L1 E
* 1.1.3	B ✓✓RT	2RT correct session (2)	D L1 E
1.1.4	Increase / Verhoging $= 88\,706\,141 - 88\,704\,344$ ✓RT $= 1\,797$ ✓A OR / OF $(88\,705\,985 - 88\,704\,344) + (88\,706\,141 - 88\,705\,985)$ ✓RT $= 1\,641 + 156$ $= 1\,797$ ✓A	1RT correct values 1A number of tracks OR / OF 1RT correct values 1A number of tracks (2)	D L1 E

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 1.1.5	✓RT 690 160 : 8 120 031 ✓A = 1 : 11,77 ✓A	1RT correct values 1A values in correct order 1A simplification Accept: 11,765 / 11,8 / 12 (3)	D L1 E
1.2.1	VAT / BTW ✓✓A	2A correct acronym (2)	F L1 E
* 1.2.2	Total price / Totale prys ✓RT = R18,05 + R41,84 + R12,16 + R8,33 + R0,11 + R6,98 + R11,53 ✓MA = R99,00 ✓A	1RT all values 1MA adding all values 1A simplification (3)	F L1 E
* 1.2.3	✓RT % amount = $\frac{R8,33}{R41,84} \times 100\%$ ✓RT = 19,91% ✓A	1RT correct value 1RT correct value 1A simplification NPR (3)	F L1 M
1.2.4	Amount / Bedrag = 210 000 × R8,33 ✓MA = R1 749 300 ✓A	1MA multiplying correct values 1A simplification (2)	F L1 E
* 1.2.5	Number of CD's / Aantal CD's $= \frac{R16,50}{R0,11}$ ✓MA = 150 ✓A	1MA dividing by R0,11 1A simplification (2)	F L1 E
* 1.3.1	Gross monthly income is the monthly income before deductions / Bruto maandelikse inkomste is die maandelikse inkomste voor aftrekkings. ✓✓A	2A explanation (2)	F L1 E
* 1.3.2	Price of a vehicle / Prys van voertuig = R1 000 000,00 / R1 million / 1 million rand ✓✓RT = R1 000 000,00 / R1 miljoen / 1 miljoen rand	2RT correct price (2)	F L1 E

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.3.3	Monthly repayment / <i>Maandelikse terugbetaling</i> = R41 610,78 ✓RT = R42 000 ✓R	RT correct value 1R rounding (2)	F L1 M
		[29]	

QUESTION/VRAAG 2 [40 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
2.1.1	Elite cheque account / <i>Elite Tjekrekening</i> ✓✓RT	2RT correct account Accept: Cheque account (2)	F L1 E
* 2.1.2	Total fees / <i>Totale fooie</i> ✓RT R1,60 + R69,00 + R110,00 ✓RT = R180,60 ✓CA	1RT two correct values 1RT third correct value 1CA simplification AO (3)	F L1 E
* (2.1.3)	Net salary (A) / <i>Netto salaris (A)</i> ✓RT = R10 078,41 – R2 100,35 ✓MA = R7 978,06 ✓CA Portion of Net salary / <i>Gedeelte van Netto salaris</i> = R7 978,06 ÷ 4 / × 0,25 / × $\frac{1}{4}$ ✓MCA = R1 994,52 ✓CA Total insurance / <i>Totale versekering</i> R940,39 + R940,39 = R1 880,78 ✓A R1 994,52 > R1 880,78 His statement is INCORRECT / <i>Sy bewering is VERKEERD.</i> ✓O OR / OF	1RT both correct values 1MA subtracting values 1CA simplification 1MCA dividing by 4 1CA simplification 1A total monthly insurance 1O conclusion OR / OF	F L4 M

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 2.1.3	Net salary (A) / <i>Netto salaris (A)</i> $\checkmark$RT $= R10\,078,41 - R2\,100,35 \quad \checkmark$MA $= R7\,978,06 \quad \checkmark$CA Total insurance / <i>Totale versekering</i> $= \frac{R1\,880,78}{R7\,978,06} \times 100\% \quad \checkmark$A $\checkmark$MCA $= 23,57\% \quad \checkmark$CA $23,57\% < 25\%$ His statement is INCORRECT / <i>Sy bewering is VERKEERD.</i> $\checkmark$O OR / OF Net salary (A) / <i>Netto salaris (A)</i> $\checkmark$RT $= R10\,078,41 - R2\,100,35 \quad \checkmark$MA $= R7\,978,06 \quad \checkmark$CA Total insurance / <i>Totale versekering</i> $R940,39 + R940,39$ $= R1\,880,78 \quad \checkmark$A $R1\,880,78 \times 4 \quad \checkmark$MCA $= R7\,523,12 \quad \checkmark$CA $R7\,978,06 > R7\,523,12$ His statement is INCORRECT / <i>Sy bewering is VERKEERD.</i> $\checkmark$O	1RT both correct values 1MA subtracting values 1CA simplification 1A numerator 1MCA denominator 1CA simplification 1O conclusion OR / OF 1RT both correct values 1MA subtracting values 1CA simplification 1A total monthly insurance 1MCA multiplying by 4 1CA simplification 1O conclusion	(7)

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 2.1.4	Amount excluding VAT / Bedrag BTW uitgesluit ✓A $= \frac{100}{115} \times \frac{R110,00}{1} \checkmark \text{MA}$ $= R95,65217391 \checkmark \text{A}$ Amount including VAT / Bedrag BTW ingesluit $= R95,65217391 \times \frac{114}{100} \checkmark \text{MA}$ $= R109,04 \checkmark \text{CA}$ OR/OF Amount excluding VAT / Bedrag BTW uitgesluit $= \frac{R110,00}{1,15} \checkmark \text{A}$ $= R95,65217391 \checkmark \text{A}$ Amount including VAT / Bedrag BTW ingesluit $= R95,65217391 \times 1,14 \checkmark \text{MA}$ $= R109,04 \checkmark \text{CA}$	1A correct VAT calculation 1MA multiplying by $\frac{R110}{1}$ 1A simplification 1MA multiplying by $\frac{114}{100}$ 1CA simplification OR/OF 1A correct VAT calculation 1MA dividing by 1,15 1A VAT excluded amount 1MA multiplying by 1,14 1CA simplification (5)	F L3 D
* 2.2.1	Annual taxable income / Jaarlikse belasbare inkomste $= R8\,978,00 \times 12$ $= R107\,736,00 \checkmark \text{A}$ Tax bracket / Belasting hakkie $= \text{A}$ OR / OF $= 1 - 226\,000 \checkmark \checkmark \text{RT}$ OR / OF $= 18\% \text{ of taxable income}$	1A annual taxable income 2RT tax bracket AO (3)	F L2 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.2.2	Income Tax / <i>Inkomstebelasting</i> 18% of taxable income $= R107\,736,00 \times \frac{18}{100}$ ✓MCA $= R19\,392,48$ ✓CA ✓MA $= R19\,392,48 - (R16\,425,00 + R9\,000,00)$ ✓MA $= R19\,392,48 - R25\,425$ $= -R6\,032,52$ OR / OF $R19\,392,48 < R25\,425$ ✓CA His statement is VALID / Sy bewering is GELDIG. ✓O OR / OF Annual Taxable Income / <i>Jaarlikse belasbare inkomste</i> $= R107\,736,00$ Rebates / <i>Kortings</i> $= R16\,425 + R9\,000$ ✓MA $= R25\,425$ ✓CA Tax Threshold / <i>Belastingdrempel</i> $= R25\,425 \div 18\%$ ✓MCA $= R141\,250$ ✓CA R141 250 is greater than / <i>is meer as</i> R107 736. ✓O His statement is VALID / Sy bewering is GELDIG. ✓O	CA from Question 2.2.1 1MCA calculating 18% 1CA simplification 1MA subtracting rebate 1MA subtracting rebate 1CA simplification 1O conclusion OR / OF 1MA adding rebate 1CA simplification 1MCA dividing by 18% 1CA simplification 1O reason 1O conclusion (6)	F L4 M
2.3.1	Grants / Toelae ✓✓RT	2RT correct item (2)	F L1 E
* 2.3.2	Amount in thousands / <i>Bedrag in duisende</i> ✓RT $R340\,688 - (R111\,769 + R48\,152)$ ✓MA $= R180\,767$ ✓CA	1RT correct values 1MA adding and subtracting 1CA simplification (3)	F L2 E
* 2.3.3	The amount is a deficit / <i>Die bedrag is ‘n tekort.</i> ✓✓O OR/OF Indicates the amount is negative / <i>Dui aan dat die bedrag negatief is.</i> ✓✓O	2O opinion (2)	F L4 E

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
2.3.4	Net deficit / <i>Netto verlies</i> ✓RT ✓RT $R313\,792 - R322\,891 \quad \checkmark A$ $= - R9\,099$	1RT correct value 1RT correct value 1A subtraction in correct order (3)	F L2 E
2.3.5	Net surplus/<i>Netto surplus</i>: ✓RT $Y = \frac{2,53}{100} \times \frac{317\,582}{1} \quad \checkmark MA$ $= R8\,034,825 \quad \textbf{OR / OF} \quad R8\,035 \quad \checkmark A$ Expenditure/<i>Uitgawes</i>: $Z = R317\,582 - R8\,035 \quad \checkmark MA$ $= R309\,547$ OR/OF $100\% - 2,53\% \quad \checkmark MA$ $= 97,47\% \quad \checkmark A$ Expenditure / <i>Uitgawes</i> ✓RT $\frac{97,47}{100} \times \frac{317\,582}{1} \quad \checkmark MA$ $= R309\,547,18$ $\approx R309\,547$	1RT correct value 1MA calculating surplus 1A simplification 1MA subtracting correct values OR/OF 1MA subtracting percentages 1A simplification 1RT correct value 1MA correct substitution (4)	F L3 M
		[40]	

QUESTION/VRAAG 3 [27 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
3.1.1	Male / <i>Manlik</i> ✓✓RT	2RT correct option (2)	D L1 E
* 3.1.2	Difference / <i>Verskil</i> ✓RT 21,5% – 11,1% ✓MA = 10,4% ✓CA	1RT correct values 1MA subtracting values 1CA simplification NPU (3)	D L2 E
* (3.1.3)	The percentage of children in the under 5 year-category is almost the same. / <i>Die persentasie van kinders in die onder 5 kategorie is amper dieselfde.</i> ✓✓O There is a greater increase in urban than in rural for the over 5 years to 17-category / <i>Daar is 'n groter toename in stedelike as in landelike vir die bo 5 tot 17 jaar kategorie.</i> ✓O OR / OF Healthy food vs Junk food / <i>Gesonde kos vs gemorskos.</i> More active vs Less active / <i>Meer aktief vs Minder aktief.</i> Walking long distances to school vs Driving to school / <i>Stap lang afstande skool toe vs ry skool toe.</i> Manual labour vs Playing video games / <i>Handarbeid vs om videospelletjies te speel.</i> ✓O	2O comparison 1O comparison / comment (3)	D L4 D
3.1.4	Number of learners / <i>Aantal leerders</i> $\frac{16,3}{100} \times \frac{795}{1}$ ✓MA = 130 learners / <i>leerders</i> ✓A Learners not overweight or obese / <i>Leerders nie oorgewig of baie oorgewig nie</i> = 795 – 130 = 665 learners/ <i>leerders</i> ✓CA OR/OF	1MA percentage calculation 1A simplification Accept: 129 1CA simplification Accept: 666 OR/OF	D L2 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.4	Percentage / Persentasie $100\% - 16,3\%$ $= 83,7\%$ ✓A Number of learners / Aantal leerders $\frac{83,7}{100} \times \frac{795}{1}$ ✓MA $= 665$ learners / leerders ✓CA	1A finding the percentage 1MA percentage calculation 1CA simplification (3)	
* 3.1.5	Probability / Waarskynlikheid Overweight/Obese / Oorgewig/Baie oorgewig = 11,1% ✓MA $= 100\% - 11,1\%$ $= 88,9\%$ ✓A $= \frac{889}{1\ 000}$ ✓CA	1MA calculating percentage 1A simplification 1CA correct fraction (3)	P L3 M
* 3.2.1	17,9 inches / duim ✓✓RT	2RT reading from chart Accept 17,8 – 18 (2)	D L2 M
3.2.2	✓RT ✓RT One month and 18 months Een maand en 18 maande	1RT correct age 1RT correct age (2)	D L2 M
3.2.3	The other child fell in a <u>higher</u> percentile / Die ander kind val onder 'n <u>hoër</u> persentiel. ✓✓A	2A correct conclusion (2)	D L4 M
3.3.1	75% ✓✓RT	2RT correct interpretation (2)	D L2 M
* 3.3.2	✓MA $\frac{50}{100} \times \frac{129}{1}$ ✓RT $= 64,5$ ✓A 64 children, because the 65th child will fall on the median / 64 kinders ,want die 65ste kind val op die mediaan.	1MA calculating 50% 1RT finding 129 1A simplification (3)	D L3 D

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 3.3.3	Unfair sampling - Having sample population of 13 malnourished and 129 normal was <u>biased</u> from the beginning / <i>Onregverdige steekproefneming - Die steekproefpopulasie van 13 ondervoede en 129 normaal was van die begin af bevooroordeeld.</i> OR / OF ✓✓O The sample was <u>skewed</u> towards the normal nutritional status. The representation might have been based on the prevalence of malnourished to normal status. <i>Die steekproef neig meer na die normale voedingswaarde status. Die steekproef mag verteenwoordigend gewees het van wanvoeding tot normale status.</i>	20 correct explanation (2)	D L4 D
		[27]	

QUESTION/VRAAG 4 [33 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
* 4.1.1	No mode / <i>Geen modus</i> OR / OF None / <i>Geen</i> ✓✓A	2A no mode (2)	D L2 E
* 4.1.2	7 ✓✓A	2A number of items (2)	D L1 E
* 4.1.3	Amount for on-line / <i>Bedrag vir aanlyn</i> ✓MA = R 208,74 + (R15 × 2) = R238,74 ✓A Amount saved / <i>Bedrag gespaar</i> ✓RT = R261,80 – R238,74 = R23,06 ✓CA OR / OF Amount saved / <i>Bedrag gespaar</i> ✓RT ✓MA = (R261,80 – R208,74) – (R15,00 × 2) ✓A = R53,06 – R30 = R23,06 ✓CA	1MA multiply by 2 1A simplification RT correct value (R261,80) 1CA simplification OR / OF RT correct value (R261,80) 1MA multiply by 2 1A simplification 1CA simplification (4)	F L2 E
* 4.1.4	Median / <i>Mediaan</i> 11,95 12,99 13,95 14,99 15,95 15,95 18,95 20,99 22,95 23,99 27,95 29,95 ✓A ✓RT = $\frac{15,95 + 18,95}{2}$ ✓MA = $\frac{34,90}{2}$ = 17,45 ✓CA	1A arranging values 1RT two middle values 1MA concept of median 1CA simplification (4)	D L2 M
4.1.5	Probability / <i>Waarskynlikheid</i> = $\frac{6}{12}$ ✓✓A OR / OF $\frac{1}{2}$ OR / OF 0,5 OR / OF 50% ✓A	2A numerator 1A denominator AO (3)	P L3 E

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 4.2.1	Third lowest / <i>Derde laagste</i> = P&P store / <i>winkel</i> ✓✓A	2A correct store (2)	F L1 E
* 4.2.2	Number of doughnuts / <i>Aantal oliebolle</i> = 50×4 ✓MA = 200 ✓A Cost of packets of doughnuts / <i>Koste van pakkies oliebolle</i> = R701 – R201 = R500 ✓A Cost per doughnut / <i>Koste per oliebol</i> = $R500 \div 200$ ✓MA = R2,50 ✓CA FLM store / <i>winkel</i> ✓A	1MA multiplying by 4 1A number of doughnuts 1A cost of packs of doughnuts 1MA dividing by 200 1CA simplification 1A correct store (6)	F L3 D
4.2.3	✓A Disagree. The expenses is higher than the income / <i>Stem nie saam nie. Die uitgawes is hoër as die inkomste.</i> ✓✓O	1A disagree 2O reason (3)	F L4 M
* 4.2.4	Lower / <i>Laer</i> ✓A Income higher, therefore the break-even point will be reached sooner / <i>Inkomste verhoog, daarom sal die gelykbreekpunt vroeër bereik word.</i> ✓✓O Cost will be covered sooner / <i>Koste sal vroeër gedek word.</i>	1A lower 2O reason (3)	F L4 M
4.2.5	Percentage profit / <i>Persentasie wins</i> $\% \text{ Profit / Wins} = \frac{\text{R2 000} - \text{R1 201}}{\text{R1 201}} \times 100\%$ = 66,53% ✓CA	1RT correct value from graph RT correct value from graph 1SF correct substitution 1CA simplification NPR NPU AO (4)	F L2 M
		[33]	

QUESTION/VRAAG 5 [21 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
* 5.1.1	Wizz Air Group / Groep ✓✓RT	2RT correct aircraft group (2)	D L2 E
* 5.1.2	Percentage decrease / Persentasie vermindering ✓RT $A = \frac{3\,763 - 4\,290}{4\,290} \times 100\% \quad \checkmark A$ $= -12,28438228\% \quad \checkmark A$ $= -12\% \quad \checkmark R$ OR / OF $\% \text{ operated} = \frac{3\,763}{4\,290} \times 100\% \quad \checkmark RT$ $= 87,71561772\% \quad \checkmark MA$ $A = 87,71561772\% - 100\%$ $= -12,28438228\% \quad \checkmark A$ $= -12\% \quad \checkmark R$	1RT correct value (3 763) 1A correct denominator 1A simplification 1R correct rounding OR / OF 1RT correct value (3 763) 1MA calculating % 1A simplification 1R correct rounding (4)	D L3 D
5.1.3	Range / Omvang ✓RT ✓RT $= 13\% - (-35\%)$ $= 48\% \quad \checkmark A$	1RT correct value 1RT correct value 1A simplification (3)	D L2 D
5.1.4	Value of B / Waarde van B $1\,028,2 = \frac{2\,566 + 1\,347 + \dots + B + 547 + 536}{10} \quad \checkmark MA$ $1\,028,2 = \frac{9\,640 + B}{10}$ $B = 1\,028,2 \times 10 - 9\,640 \quad \checkmark MA$ $B = 642 \quad \checkmark CA$	1MA concept of mean 1MA adding values 1MA changing the subject of the formula 1CA simplification (4)	D L3 D

Q/V	Solution/Oplossing	Explanation/Verduideliking	
5.1.5	Probability / Waarskynlikheid $= \frac{2}{10} \checkmark A$ $= 0,2 \checkmark CA$	1A numerator 1A denominator 1CA simplification AO (3)	P L3 E
* 5.2.1	Stronger / Sterker $\checkmark\checkmark A$	2A stronger (2)	F L1 M
5.2.2	$\$1 = \text{NIS } 3,66061 \checkmark A$ Amount / Bedrag $= \frac{2\,580}{1} \times 3,66061 \checkmark MA$ $= \text{NIS } 9\,444,37 \checkmark A$ OR / OF $\text{NIS } 1 = \$0,27317867 \checkmark A$ Amount / Bedrag $= \frac{2\,580}{0,27317867} \times 1 \checkmark MA$ $= \text{NIS } 9\,444,37 \checkmark A$	1A identifying correct exchange rate 1MA multiplying with exchange rate 1A simplification OR / OF 1A identifying correct exchange rate 1MA dividing with exchange rate 1A simplification NPR AO (3)	F L2 M
		[21]	
		TOTAL/TOTAAL: 150	