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# 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**

<b>Symbol/Kode</b>	<b>Explanation/Verduideliking</b>
<b>MA</b>	Method with accuracy/ <i>Metode met akkuraatheid</i>
<b>MCA</b>	Method with consistent accuracy/ <i>Metode met volgehoue akkuraatheid</i>
<b>CA</b>	Consistent accuracy/ <i>Volgehoue akkuraatheid</i>
<b>A</b>	Accuracy/ <i>Akkuraatheid</i>
<b>C</b>	Conversion/ <i>Herleiding</i>
<b>S</b>	Simplification/ <i>Vereenvoudiging</i>
<b>RT</b>	Reading from a table/graph/document/diagram/ <i>Lees vanaf tabel/grafiek/dokument/diagram</i>
<b>SF</b>	Correct substitution in a formula/ <i>Korrekte vervanging in 'n formule</i>
<b>O</b>	Opinion/Explanation/ <i>Opinie/Verduideliking</i>
<b>P</b>	Penalty, e.g. for no units, incorrect rounding off, etc./ <i>Penalisering, bv. vir geen eenhede, verkeerde afronding, ens.</i>
<b>NPR</b>	No penalty for correct rounding/ <i>Geen penalisering vir korrekte afronding nie</i>
<b>NPU</b>	No penalty for omitting unit, but wrong unit is penalised/ <i>Geen penaliseringe indien die eenheid uitgelos is nie, maar wel indien 'n verkeerde eenheid gebruik word.</i>
<b>AO</b>	Answer only/ <i>Slegs antwoord</i>

**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 berekening dit voorgaan.
- Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie.

<b>QUESTION/VRAAG 1 [29 MARKS/PUNTE] ANSWER ONLY FULL MARKS</b>			
<b>Q/V</b>	<b>Solution/Oplossing</b>	<b>Explanation/Verduideliking</b>	<b>T&amp;L</b>
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  <b>OR / OF</b>  $(88\,705\,985 - 88\,704\,344) + (88\,706\,141 - 88\,705\,985)$ ✓RT $= 1\,641 + 156$ $= 1\,797$ ✓A	1RT correct values 1A number of tracks  <b>OR / OF</b>  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 <div>Accept: 11,765 / 11,8 / 12</div> (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 <b>NPR</b> (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  ✓✓RT = R1 000 000,00 / R1 million / 1 million rand = R1 000 000,00 / R1 miljoen / 1 miljoen rand	2RT correct price  (2)	F L1 E

Q/V	Solution/ <i>Oplossing</i>	Explanation/ <i>Verduideliking</i>	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>  $= R7\,978,06 \div 4 \div \times 0,25 \div \times \frac{1}{4}$ ✓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 <b>INCORRECT</b> / <i>Sy bewering is VERKEERD.</i> ✓O  <b>OR / OF</b>	1RT both correct values 1MA subtracting values 1CA simplification     1MCA dividing by 4 1CA simplification    1A total monthly insurance    1O conclusion  <b>OR / OF</b>	F L4 M

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

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



Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
2.3.4	Net deficit / <i>Netto verlies</i> $\checkmark$ RT $\checkmark$ RT $R313\,792 - R322\,891 \checkmark$ 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> : $\checkmark$ RT $Y = \frac{2,53}{100} \times \frac{317\,582}{1} \checkmark$ MA $= R8\,034,825$ <b>OR / OF</b> $R8\,035 \checkmark$ A  Expenditure/ <i>Uitgawes</i> :  $Z = R317\,582 - R8\,035 \checkmark$ MA $= R309\,547$  <b>OR/OF</b>  $100\% - 2,53\% \checkmark$ MA $= 97,47\% \checkmark$ A  Expenditure / <i>Uitgawes</i> $\checkmark$ RT $\frac{97,47}{100} \times \frac{317\,582}{1} \checkmark$ MA  $= R309\,547,18$ $\approx R309\,547$	1RT correct value  1MA calculating surplus 1A simplification  1MA subtracting correct values  <b>OR/OF</b>  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/Oplissing	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 <b>NPU</b> (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  <b>OR / OF</b>  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>Handearbeid vs om videospeletjies 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  <b>OR/OF</b>	1MA percentage calculation  1A simplification Accept: 129   1CA simplification Accept: 666  <b>OR/OF</b>	D L2 M

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

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
* 3.3.3	<p>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></p> <p style="text-align: center;"><b>OR / OF</b>                      ✓✓O</p> <p>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></p>	<p>20 correct explanation</p> <p style="text-align: right;">(2)</p>	<p>D L4 D</p>
		<b>[27]</b>	



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> = $50 \times 4$ ✓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 <b>NPR</b> <b>NPU</b> <b>AO</b>  (4)	F L2 M
		[33]	

<b>QUESTION/VRAAG 5 [21 MARKS/PUNTE]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T&amp;L</b>
* 5.1.1	Wizz Air Group / <i>Groep</i> ✓✓RT	2RT correct aircraft group (2)	D L2 E
* 5.1.2	<p>Percentage decrease / <i>Persentasie vermindering</i> ✓RT</p> $A = \frac{3\,763 - 4\,290}{4\,290} \times 100\% \quad \checkmark A$ $= -12,28438228\% \quad \checkmark A$ $= -12\% \quad \checkmark R$ <p style="text-align: center;"><b>OR / OF</b></p> $\% \text{ operated} = \frac{3\,763}{4\,290} \times 100\% \quad \checkmark RT$ $= 87,71561772\% \quad \checkmark MA$ $A = 87,71561772\% - 100\%$ $= -12,28438228\% \quad \checkmark A$ $= -12\% \quad \checkmark R$	<p>1RT correct value (3 763) 1A correct denominator</p> <p>1A simplification 1R correct rounding</p> <p style="text-align: center;"><b>OR / OF</b></p> <p>1RT correct value (3 763) 1MA calculating %</p> <p>1A simplification 1R correct rounding (4)</p>	D L3 D
5.1.3	<p>Range / <i>Omvang</i> ✓RT    ✓RT</p> $= 13\% - (-35\%)$ $= 48\% \quad \checkmark A$	<p>1RT correct value 1RT correct value 1A simplification (3)</p>	D L2 D
5.1.4	<p>Value of B / <i>Waarde van B</i></p> $1\,028,2 = \frac{2\,566 + 1\,347 + \dots + B + 547 + 536}{10} \quad \checkmark MA$ $1\,028,2 = \frac{9\,640 + B}{10}$ $B = 1\,028,2 \times 10 - 9\,640 \quad \checkmark MA$ $B = 642 \quad \checkmark CA$	<p>1MA concept of mean 1MA adding values</p> <p>1MA changing the subject of the formula 1CA simplification (4)</p>	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 <b>AO</b> (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 $= \frac{2\,580}{1} \times 3,66061 \checkmark MA$ $= \text{NIS } 9\,444,37 \checkmark A$  <p style="text-align: center;"><b>OR / OF</b></p> $\text{NIS } 1 = \$0,27317867 \checkmark A$  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  <p style="text-align: center;"><b>OR / OF</b></p> 1A identifying correct exchange rate  1MA dividing with exchange rate 1A simplification <b>NPR</b> <b>AO</b> (3)	F L2 M
		<b>[21]</b>	
		<b>TOTAL/TOTAAL: 150</b>	