



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/ NASIONALE SENIOR SERTIFIKAAT

GRADE/GRAAD 12

**MATHEMATICAL LITERACY P1/
WISKUNDIGE GELETTERDHEID VI**

EXEMPLAR/MODEL 2021

MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 150

Symbol/Kode	Explanation/Verduideliking
M	Method/ <i>Metode</i>
MA	Method with accuracy/ <i>Metode met akkuraatheid</i>
CA	Consistent accuracy/ <i>Volgehoue akkuraatheid</i>
A	Accuracy/ <i>Akkuraatheid</i>
C	Conversion/ <i>Herleiding</i>
S	Simplification/ <i>Vereenvoudiging</i>
RT	Reading from a table/graph/document/diagram/ <i>Lees vanaf tabel/grafiek/dokument/diagram</i>
SF	Correct substitution in a formula/ <i>Korrekte vervanging in 'n formule</i>
O	Opinion/Explanation/ <i>Opinie/Verduideliking</i>
P	Penalty, e.g. for no units, incorrect rounding off, etc./ <i>Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.</i>
R	Rounding off/ <i>Afronding</i>
NPR	No penalty for rounding/ <i>Geen penalisasie vir afronding nie</i>
AO	Answer only/ <i>Slegs antwoord</i>
MCA	Method with consistent accuracy/ <i>Metode met volgehoue akkuraatheid</i>
RCA	Rounding consistent with accuracy/ <i>Afronding met volgehoue akkuraatheid</i>

**This marking guideline consists of 12 pages.
Hierdie nasienriglyne bestaan uit 12 bladsye.**

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.

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 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.

QUESTION/VRAAG 1 [29 MARKS/PUNTE] ANSWER ONLY FULL MARKS			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
1.1.1	The change in the prices of goods from month to month/ <i>Die verandering in pryse van maand tot maand.</i> ✓✓A	2A correct definition (2)	F L1
1.1.2	Continuous data/ <i>Kontinue data</i> ✓✓A	2A Continuous Data (2)	D L1
1.1.3	9,7%; 2,9%; 2,2%; 1,4%; 0,9% ✓✓A	2A correct order (2)	D L1
1.1.4	✓M R4 054,94 – R3 886,87 = R168,07 ✓A	1MA subtracting correct values 1A simplification (2)	F L1
1.1.5	Springbok ✓✓A	2A Springbok (2)	F L1
1.2.1	Multiple vertical bar graphs/ <i>Meervoudige vertikale staafgrafieke</i> Vertically grouped bar graphs/ <i>Vertikaal gegroepeerde staafgrafieke</i> ✓✓A	2A correct type of graph (2)	D L1
1.2.2	48% ✓✓A	2A correct answer (2)	D L1
1.2.3	0% ✓✓A	2A correct answer (2)	P L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
1.2.4	$A = 100\% - (52\% + 18\% + 9\% + 14\%) \checkmark M$ $= 100\% - 93\% \checkmark MA$ $= 7\% \checkmark CA$	1M reading correct values 1MA subtracting correct values 1CA simplification (3)	D L1
1.2.5	Broken line graph/ <i>Gebroke lyngrafiek</i> Pictogram/ <i>Piktogram</i> $\checkmark\checkmark A$	2A correct answer (2)	D L1
1.3.1	R270 $\checkmark\checkmark A$	2A correct answer (2)	F L1
1.3.2	Graph/ <i>Grafiek</i> Y $\checkmark\checkmark A$	2A correct answer (2)	F L1
1.3.3	Selling price/ <i>Verkoopprijs</i> $= \frac{R600}{10}$ $= R60,00 \checkmark\checkmark A$	2A correct answer (2)	D L1
1.3.4	The point where the cost and selling price is exactly the same. No profit or loss made./ <i>Die punt waar die kosprys en verkoopprijs presies dieselfde is. Geen wins of verlies gemaak nie.</i> $\checkmark\checkmark A$	2A correct explanation (2)	F L1
		[29]	

QUESTION/VRAAG 2 [35 MARKS/PUNTE]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
2.1.1	04/03/2021 ✓✓A	2A correct date (2)	F L1
2.1.2	Value Added Tax/ <i>Belasting op Toegevoegde Waarde</i> ✓✓A	2A full name (2)	F L1
2.1.3	Unit price excluding VAT/ <i>Eenheidsprys BTW uitgesluit</i> ✓RT R1 152,60 ÷ 1 356 ✓MA = R0,85 ✓CA	1RT correct values 1M dividing 1CA simplification AO (3)	F L2
2.1.4	Amount including VAT/ <i>Bedrag BTW ingesluit</i> R1 152,60 × 0,15 ✓MA = R172,89 ✓A	1MA calculating VAT incl. 1A simplification. (2)	F L2
2.1.5	Number of cans/ <i>Aantal blikkies</i> = R771,48 ÷ R64,29 ✓MA = 12 ✓A	1MA diving correct values 1A correct number (2)	F L1
2.1.6	Total excluding VAT/ <i>Totaal BTW uitgesluit</i> ✓RT = R64,29 ÷ 1,15 ✓MA = R55,90 ✓CA	1RT correct values 1MA dividing by 1,15 1CA simplification AO (3)	F L2
2.1.7	R0,00/free/ <i>gratis</i> ✓✓A	2A correct amount (2)	F L1
2.1.8	Total cost for Option 1/ <i>Totale koste vir Opsie 1</i> = R1 152,60 + R172,84 ✓MCA = R1 325,49 ✓CA Total cost for Option 2/ <i>Totale koste vir Opsie 2</i> = R771,48 ✓A Savings/ <i>Besparing</i> = R1 325,49 – R771,48 = R554,01 ✓CA	1MCA adding correct values 1CA total cost 1A total cost for option 2 1CA simplification (4)	F L3

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.1.9	<p>She believes the cans are not as powerful as the machine/ <i>Sy glo die blikkies is nie so kragtig soos die masjien nie</i></p> <p>OR/OF</p> <p>Obtain guarantee when done by reputable service provider/<i>Verkry waarborg wanneer dit deur betroubare diensverskaffer gedoen word.</i></p> <p>OR/OF</p> <p>Any suitable reason/<i>Enige geskikte rede</i> ✓✓O</p>	<p>2O opinion (2)</p>	<p>F L4</p>
2.2.1	<p>Tariff before increase/<i>Tarief voor verhoging</i></p> <p>✓RT</p> $R35,92 \times \frac{100}{105,5} \quad \checkmark\text{MA}$ <p>= R34,05 ✓CA</p>	<p>1MA percentage difference</p> <p>1CA simplification (3)</p>	<p>F L2</p>
2.2.2	<p>Amount payable/<i>Bedrag betaalbaar</i></p> <p>0–6 kℓ = 6 kℓ More than 6–20 kℓ = 14 kℓ More than 20–38 kℓ = 18 kℓ } ✓A</p> <p>Cost for 1st 6 kℓ/<i>Koste vir 1^{ste} 6 kℓ</i> = 6 × R6,65 ✓MA = R39,90 ✓A</p> <p>Cost for next 14 kℓ/<i>Koste vir volgende 14 kℓ</i> = 14 × R28,24 = R395,36 ✓CA</p> <p>Cost for 18 kℓ/<i>Koste vir 18 kℓ</i> = 18 × R31,79 = R572,22 ✓CA</p> <p>Total cost for 38 kℓ/<i>Totale koste vir 38 kℓ</i> = R39,90 + R395,36 + R572,22 = R1 007,48 ✓CA</p>	<p>1A amount of kℓ</p> <p>1MA multiplying with tariff 1CA simplification</p> <p>1CA simplification</p> <p>1CA simplification</p> <p>1CA simplification (6)</p>	<p>F L3</p>

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.2.3	<p>Total amount/Totale bedrag</p> <p>✓MA</p> $R6\,200 \times \frac{12,5}{100} \times \frac{6}{12} \checkmark MA$ $= R387,50 \checkmark CA$ $= R5\,200 + R387,50$ $= R5\,587,5 \checkmark CA$ <p>OR/OF</p> <p>✓MA</p> $R6\,200 \times 0,125 \times 0,5 \checkmark MA$ $= R387,50 \checkmark CA$ $= R5\,200 + R387,50$ $= R5\,587,50 \checkmark CA$	<p>1MA multiply by 12,5%</p> <p>1MA multiply by 6 months</p> <p>1CA simplification</p> <p>1CA simplification</p> <p>OR/OF</p> <p>1MA multiply by 0,125</p> <p>1MA multiply by 0,5</p> <p>1CA simplification</p> <p>1CA simplification</p> <p style="text-align: right;">(4)</p>	<p>F</p> <p>L2</p>
		[35]	

QUESTION/VRAAG 3 [24 MARKS/PUNTE]																							
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L																				
3.1.1	1 371 travellers/reisigers ✓✓RT	2RT correct number (2)	D L1																				
3.1.2	$1\ 371 + 140\ 238 + 54$ ✓RT = 141 663 ✓M	1RT correct values 1M adding (2)	D L2																				
3.1.3	$A = 619 - (299 + 38 + 12 + 33 + 1)$ ✓RT = 236 ✓A OR/OF $460 - 103$ ✓RT = 121 ✓A ✓M	1RT correct values 1M adding and subtracting 1A correct value OR/OF 1RT correct values 1M subtracting 1A correct value (3)	D L2																				
3.1.4	Unspecified refers to some travellers who might have omitted their country of origin on their documentation./ <i>Ongespesifiseer verwys na reisigers wat moontlik hul land van herkoms uit hul dokumentasie weggelaat het.</i> ✓✓O	2O explanation (2)	D L4																				
3.1.5	<p>Foreign travellers by region and mode of transport</p> <table border="1"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Mode of Transport</th> <th>North America</th> <th>Australasia</th> <th>Unspecified</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td>62</td> <td>45</td> <td>54</td> </tr> <tr> <td>Air</td> <td>21</td> <td>9</td> <td>35</td> </tr> <tr> <td>Road</td> <td>38</td> <td>33</td> <td>19</td> </tr> <tr> <td>Sea</td> <td>3</td> <td>3</td> <td>0</td> </tr> </tbody> </table>	Mode of Transport	North America	Australasia	Unspecified	Total	62	45	54	Air	21	9	35	Road	38	33	19	Sea	3	3	0	1A for each correctly plotted bar × 3 (3)	D L2
Mode of Transport	North America	Australasia	Unspecified																				
Total	62	45	54																				
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Road	38	33	19																				
Sea	3	3	0																				

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.2.1	339 943 ✓✓RT OR/OF Three hundred and thirty-nine-thousand, nine hundred and forty- three/ <i>Drie honderd nege en dertig duisend, nege honderd drie en veertig.</i>	2RT correct number (2)	D L1
3.2.2	✓RT $12\% + 8\% + 5\% + 5\% + 4\%$ ✓M $= 34\%$ ✓A	1RT correct values 1M adding 1A correct percentage (3)	D L2
3.2.3	✓RT $\frac{339943}{7877165} \times 100\%$ ✓M $= 4,31555\%$ ✓A They rounded all the percentage values to give a holistic view./ <i>Hulle het al die persentasiewaardes afgerond om 'n holistiese beeld te gee.</i> ✓O	1RT correct values 1M percentage calculation 1A correct percentage 1O explanation (4)	D L4
3.2.4	$12\% + 4\% = 16\%$ ✓M $\frac{16}{100}$ ✓C $\frac{4}{25}$ ✓S	1M adding percentages 1C convert to fraction 1S simplify fraction (3)	P L2
		[24]	

QUESTION/VRAAG 4 [29 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
4.1.1	<p>To build schools, roads and hospitals/<i>Om skole, paaie en hospitale te bou.</i> ✓✓O</p> <p>To help with other government services, like paying out social grants/<i>Om te help met ander regeringsdienste, soos om maatskaplike toelaes uit te betaal.</i> ✓✓O</p> <p>Money needed to defend the country/<i>Geld wat nodig is om die land te verdedig.</i></p> <p>Any TWO valid reasons/<i>Enige TWEE geldige redes.</i></p>	<p>2O reason</p> <p>2O reason</p> <p>(4)</p>	F L4
4.1.2	<p>Pension/<i>Pensioen</i> = 7,5% ✓RT 7,5% of gross salary/<i>van bruto salaris</i> = 1 855,08 100% of gross salary/<i>van bruto salaris</i> = ?</p> <p>Gross salary/<i>Bruto salaris</i></p> <p>= 100% × 1 855,08 ÷ 7,5% ✓MA = 24 734,40 ✓CA</p> <p>Deductions/<i>Aftrekkings</i></p> <p>= 4 013,01 + 1 855,08 + 5 389 + 764,66 + 1 485,56 + 715 + 74 + 7,50 = 14 303,81 ✓A</p> <p>Net salary/<i>Netto salaris</i></p> <p>= 24 734,40 – 14 303,81 = R10 430,59 ✓CA</p>	<p>1RT GEPF value</p> <p>1MA multiply by 100% and ÷ 7,5% 1CA gross salary</p> <p>1A total deductions</p> <p>1CA net salary</p> <p>(5)</p>	F L3
4.1.3	<p>✓✓O</p> <p>To keep pace with inflation/<i>Om met inflasie tred te hou</i></p>	<p>2O reason</p> <p>(2)</p>	F L4
4.2.1	<p>✓A</p> <p>19 095; 21 908; 21 908; 21 908; 22 126; 24 133; 26 904; 28 208; 28 477; 28 477; 39 992 ✓A</p>	<p>1A correct order 1A all PL 1 values</p> <p>(2)</p>	D L1
4.2.2	<p>21 908 ✓✓A</p>	<p>1A modal value</p> <p>(2)</p>	D L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
4.2.3	$\frac{R262\ 896}{12} \checkmark M$ $= R21\ 908 \checkmark CA$ <p>Not valid, there is one underqualified teacher/<i>Nie geldig nie, daar is een ondergekwalifiseerde onderwyser.</i> $\checkmark O$</p>	<p>1M dividing by 12</p> <p>1CA gross salary</p> <p>1O verification</p> <p>(3)</p>	F L4
4.2.4	$\text{Mean/Gemiddeld} = \frac{163779}{15} \checkmark M$ $= 10\ 918,6 \checkmark S$ $P = \frac{10}{15} = \frac{2}{3} \checkmark CA$	<p>1M adding deductions</p> <p>1M dividing by 15</p> <p>1S simplification</p> <p>1CA probability form</p> <p>1CA simplified form</p> <p>(5)</p>	P L3
4.2.5 (a)	$Q1/K1 = 15\ 801 \checkmark A$ $Q3/K3 = 25\ 975 \checkmark A$ $IQR/IKO = 25\ 975 - 15\ 801 \checkmark MA$ $= 10\ 174 \checkmark CA$	<p>1A Q1 value</p> <p>1A Q3 value</p> <p>1MA subtracting quartiles</p> <p>1CA simplification</p> <p>(4)</p>	D L3
4.2.5 (b)	$\checkmark O$ <p>IQR means that 50% of the staff's middle net salaries are within R10 174 from each other/<i>IKO beteken dat 50% van die personeel se middel netto salarisse binne R10 174 van mekaar af is.</i> $\checkmark O$</p>	<p>1O 50%</p> <p>1O rand value</p> <p>(2)</p>	D L4
		[29]	

QUESTION/VRAAG 5 [33 MARKS/PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
5.1.1	Weakened/ <i>Verswak</i> ✓✓A	2A correct answer (2)	F L2
5.1.2	13 January/ <i>Januarie</i> : $€2\ 000 = 2\ 000 \times R18,561$ ✓MA $= R37\ 122$ ✓A 14 January/ <i>Januarie</i> : $€2\ 000 = 2\ 000 \times R18,347$ $= R36\ 694$ ✓A Savings/ <i>Besparing</i> = R428 ✓CA OR/OF ✓RT ✓MA ✓A $(R18,561 - R18,347) \times €2\ 000 = R428$ ✓CA	1MA multiplying by correct exchange rate 1A simplification 1A simplification 1CA savings OR/OF 1RT correct amounts 1M subtracting 1MA multiplying by correct exchange rate 1CA savings (4)	F L3
5.1.3	Political unrest in a country/ <i>Politieke onrus in 'n land</i> . Weather (droughts or flooding impact on imports and exports)/ <i>Weer (droogte of oorstromings beïnvloed invoer en uitvoer)</i> . Supply and demand of imports and exports/ <i>Vraag en aanbod van in- en uitvoer</i> ✓✓O Any suitable answer/ <i>Enige geskikte antwoord</i>	2O any valid reason (2)	F L4
5.2.1	As the years increase, the amount of secondary rebate increases/ <i>Namate die jare toeneem, neem die hoeveelheid sekondêre korting toe.</i> ✓A	1A years increase 1A rebate increases (2)	D L4
5.2.2	Tax Bracket/ <i>Belastingkategorie</i> 337 801 – 467 500 OR/OF 70 532 + 31% of taxable income above 337 800 ✓✓A 70 532 + 31% van belasbare inkomste meer as 337 800	2A correct tax bracket (2)	F L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
5.2.3	<p>Annual tax/Jaarlikse belasting</p> <p>337 801 – 467 500</p> <p>70 532 + 31% of taxable income above 337 800</p> <p>70 532 + 31% van belasbare inkomste meer as 337 800</p> <p>R70 532 + 31% (R422 830,50 – R337 800) ✓SF</p> <p>R70 532 + (31% × R85 030,50) ✓S</p> <p>✓MA</p> <p>R70 532,00 + R26 359,455</p> <p>= R96 891,455 ✓CA</p> <p>= R96 891,455 – R14 958 – R8 199 ✓MA</p> <p>= R73 734,46 ✓CA</p>	<p>1SF substitution</p> <p>1S simplification</p> <p>1MA adding</p> <p>1CA tax before rebate</p> <p>1MA subtracting rebates</p> <p>1CA simplification</p> <p>(6)</p>	F L3
5.2.4	<p>Increase/Verhoging = $\frac{R73\,734,46 - R70\,893,70}{R70\,893,70} \times 100\%$ ✓RT</p> <p>= $\frac{R2\,840,76}{R70\,893,70} \times 100\%$ ✓M</p> <p>= 4,01% ✓CA</p> <p>No, his statement is not valid/Nee, sy bewering is nie geldig nie. ✓O</p>	<p>1MA subtracting correct Values</p> <p>1RT correct denominator</p> <p>1M calculating percentage</p> <p>1CA simplification</p> <p>1O not valid</p> <p>(5)</p>	F L4
5.3.1	<p>A = 100% – (6 + 6 + 7 + 8 + 23 + 31 + 16)% ✓MA</p> <p>= 3% ✓A</p> <p>Amount spent/Bedrag bestee</p> <p>✓MCA</p> <p>= 3% × R105,9 billion/miljard</p> <p>= R3 177 billion/miljard ✓CA</p>	<p>1MA subtracting given values from 100</p> <p>1A simplification</p> <p>1MCA calculating %</p> <p>1CA simplification</p> <p>(4)</p>	D L2
5.3.2	<p>Present cost/Huidige koste</p> <p>= 31% × R105,9 billion/miljard ✓MA</p> <p>= R32,829 billion/miljard ✓A</p> <p>Increase/Verhoging</p> <p>✓MCA</p> <p>= 5% × R32,829 billion/miljard</p> <p>= R1,64145 billion/miljard ✓CA</p> <p>= R1 641,45 million/miljoen ✓CA</p> <p>Mr Saul's statement is valid/Mnr. Saul se bewering is geldig ✓O</p>	<p>1MA calculating %</p> <p>1A simplification</p> <p>1MCA calculating %</p> <p>1CA simplification</p> <p>1CA writing in millions</p> <p>1O conclusion</p> <p>(6)</p>	F L4
		[33]	
TOTAL/TOTAAL: 150			