



education

MPUMALANGA PROVINCE  
REPUBLIC OF SOUTH AFRICA

**NATIONAL SENIOR CERTIFICATE**  
**NASIONALE SENIOR SERTIFIKAAT**

**GRADE / GRAAD 12**

**MATHEMATICAL LITERACY P1 /**  
**WISKUNDIGE GELETERDHEID VI**  
**MARKING GUIDELINES / NASIENRIGLYNE**

**SEPTEMBER 2021**

Symbol/Simbool	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 <i>Lees vanaf tabel/grafiek/kaart/diagram/document</i>
SF	Correct substitution in a formula/Korrekte vervanging in 'n formule
O	Opinion/Example/Explanation/Opinie/Voorbeeld/Verduideliking
P	Penalty e.g. for no units, incorrect rounding off, etc <i>Penalisasie, bv. Vir geen eenhede, verkeerde afronding, ens.</i>
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

**This marking guideline consists of 13 pages. / Die nasienriglyn bestaan uit 13 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 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 nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem het en ekstra antwoorde gee, penaliseer vir elke ekstra verkeerde item.

<b>QUESTION/VRAAG 1 [32 MARKS/PUNTE]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
1.1.1	December = 27 days, January = 7 days ✓ <b>M</b> A = 34 ✓ <b>A</b>	1M adding days 1A number of days <b>AO</b>  (2)	F  L1
1.1.2	✓ <b>M</b> 101370 – 100611 ✓ <b>RT</b> = 759	1RT correct values 1M subtract in correct order  (2)	F  L1
1.1.3	R1 375 – R129,54 – R873,30 ✓ <b>MA</b> = R372,16 ✓ <b>A</b>  <b>OR</b> R1 375 – (R129,54 + R873,30) ✓ <b>MA</b> = R1 375 – R1 002,84 = R372,16 ✓ <b>A</b>  <b>OR</b> B = 159 × R2,3406 ✓ <b>MA</b> = R372,16 ✓ <b>A</b>	1MA subtract correct values 1A correct amount  <b>OR</b> 1MA subtract correct values  1A correct amount  <b>OR</b> 1MA multiplying correct values 1A correct amount <b>AO</b>  (2)	F  L1

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
1.1.4	$\begin{aligned} &\checkmark\text{RT} \\ &\text{R1 375} + \text{R206,25} \checkmark\text{M} \\ &= \text{R1 581,25} \end{aligned}$ <p style="text-align: center;"><b>OR</b></p> $\begin{aligned} &\checkmark\text{RT} \\ &\text{R1 375} \times \frac{115}{100} \checkmark\text{M} \\ &= \text{R1 581,25} \end{aligned}$	1RT correct amount 1M adding both values  <b>OR</b> 1RT correct amount 1M multiplying by $\frac{115}{100}$	F L1   (2)
1.2.1	Japanese spider crab $\checkmark\checkmark\text{RT}$	2RT correct name	D L1 (2)
1.2.2	$\checkmark\checkmark\text{A}$ 400; 100; 100; 80; 80; 40; 34; 33; 30; 15	2A ranging correct order	D L1 (2)
1.2.3	Euphasiid (Krill) $\checkmark\checkmark\text{RT}$	2RT correct origin	D L1 (2)
1.2.4	$34 : 400 \checkmark\text{RT}$ $17 : 200 \checkmark\text{CA}$	1RT ratio in correct order 1CA simplified form <b>AO</b>	D L1 (2)
1.3.1	R200 $\checkmark\checkmark\text{RT}$	2RT correct amount	F L1 (2)
1.3.2	$\checkmark\text{RT}$ $\text{R599} + \text{R150} \checkmark\text{MA}$ $= \text{R749} \checkmark\text{A}$	1RT correct values 1MA adding both values 1A correct price <b>AO</b>	F L1 (3)
1.3.3	$\checkmark\text{RT}$ $\text{R1 799} - \text{R239,85} \checkmark\text{M}$ $= \text{R1 559,15} \checkmark\text{CA}$	1RT correct values 1M subtracting 1CA difference <b>AO</b>	F L1 (3)
1.3.4	$\checkmark\text{RT}$ $\text{VAT} = \text{R1 599} \times \frac{15}{100} \checkmark\text{MA}$ $= \text{R239,85}$	1RT correct price 1MA multiply by 15%	F L1 (2)
1.4.1	One million one hundred and twenty three thousand eight hundred and ninety rand $\checkmark\checkmark\text{A}$	2A correct salary in words	D L1 (2)
1.4.2	$\text{R494 730} \checkmark\text{RT}$ $\text{R490 000} \checkmark\text{R}$	1RT correct salary 1R correct rounding	D L1 (2)

<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
1.4.3	R625 038✓✓RT	2RT correct median (2)	D L1
		[32]	



Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.2.3	<p>No other bookings can be made for the wedding ✓✓O weekend. If the couple should cancel the wedding, venues have at least the deposit.</p> <p style="text-align: center;"><b>OR</b></p> <p>A lot of expenses are incurred before the wedding. If the couple should cancel, venues have at least the deposit.</p> <p style="text-align: center;"><b>OR</b></p> <p>Any relevant answer.</p>	<p>2O correct reason</p> <p style="text-align: right;">(2)</p>	<p>F L4</p>
2.2.4	<p><math>\frac{2\ 100}{1,15}</math> ✓A = R1 826,09 ✓A</p> <p style="text-align: center;"><b>OR</b></p> <p><math>R2\ 100 \times \frac{100}{115}</math> ✓MA = R1 826,09 ✓A</p> <p style="text-align: center;"><b>OR</b></p> <p><math>R2\ 100 \times \frac{15}{115}</math> ✓MA = R273,91 R2 100 – R273,91 ✓MA = R1 826,09 ✓A</p>	<p>1A correct cake price 1MA dividing by 1,15 1A VAT exclusive price</p> <p style="text-align: center;"><b>OR</b></p> <p>1A correct cake price 1MA multiply by <math>\frac{100}{115}</math> 1A VAT exclusive price</p> <p style="text-align: center;"><b>OR</b></p> <p>1MA multiply by <math>\frac{15}{115}</math></p> <p>1A subtracting from correct cake price 1A VAT exclusive price</p> <p style="text-align: right;">(3)</p>	<p>F L2</p>
2.2.5	<p><math>\frac{75}{100} \times R63\ 204</math> ✓RT = R47 403 ✓A</p> <p>Investment: ✓M</p> <p>Year 1: <math>\left(\frac{5,2}{100} \times R40\ 500\right) + R40\ 500</math> = R42 606 ✓CA</p> <p>Year 2: <math>\left(\frac{5,2}{100} \times R42\ 606\right) + R42\ 606</math> = R44 821,51 ✓CA</p> <p>Year 3: <math>\left(\frac{5,2}{100} \times R44\ 821,51\right) + R44\ 821,51</math> = R47 152,23 ✓CA</p> <p>No, the investment will not be enough. ✓O</p>	<p>1RT for R63 204 1A Wayne's father's payment</p> <p>1M multiply by 5,2%</p> <p>1CA amount after year 1 1CA amount after year 2 1CA amount after year 3</p> <p>1O opinion</p> <p style="text-align: right;">(7)</p>	<p>F L4</p>



<b>QUESTION / VRAAG 3 [23 MARKS]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
3.1.1	25% ✓✓RT	2RT for 25%  (2)	D L2
3.1.2	Inter-quartile range = Q3 – Q1  ✓RT = \$22 - \$15 ✓MA = \$7 ✓A	1RT both correct values 1MA subtracting correct values 1A correct answer  (3)	D L3
3.1.3	Median wage (50%) = \$19 ✓A Per day = \$19 × 8 hours ✓MA = \$152 ✓CA Yes, statement is correct. ✓O	1A correct wage 1MA multiplying by 8 hours 1CA correct amount 1O opinion  (4)	D L4
3.1.4	The Fitness Center ✓A  The hourly wage of more than 25% of all the employees at The Fitness Center is more than the maximum wage at Fitness Plus. Top management will definitely earn more at The fitness center. ✓✓O	1A correct club  2O explanation  (3)	D L4
3.2.1	✓RT 1 849 000 000 – 145 000 000 ✓M = 1 704 000 000 years ✓CA  OR ✓RT 1 849 million – 145 million ✓M = 1 704 million years ✓CA	1RT both correct values 1M subtracting correct values 1CA correct answer  <b>OR</b> 1RT both correct values 1M subtracting correct values 1CA correct answer <b>[omitting millions max 2 marks]</b>  (3)	D L2

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.2.2	Mode: 100 km ✓A Median: 90 km ✓A Mean: $= \frac{300+150+130+100+100+90+70+65+60+55+54}{11} \quad \checkmark\text{MA}$ $= \frac{1174}{11} \quad \checkmark\text{MA}$ $= 106,7 \text{ km} \quad \checkmark\text{CA}$ Either the median or mode will be representative, because the 300 is an outlier which affects the mean. ✓O	1A correct mode 1M correct median 1MA concept of mean 1MA total divide by 11 1CA correct mean 1O explanation (6)	D L3
3.2.3	$\frac{5}{11} \quad \checkmark\text{A}$ $\frac{5}{11} \quad \checkmark\text{A}$	1A numerator 1A denominator (2)	P L2
		[23]	

<b>QUESTION / VRAAG 4 [30 MARKS]</b>			
<b>Q/V</b>	<b>Solution/Oplissing</b>	<b>Explanation/Verduideliking</b>	<b>T/L</b>
4.1.1	$\begin{aligned} & \checkmark\text{RT} \\ \text{Number of people in Thembisile} &= 2\,398 \times 139 \checkmark\text{M} \\ &= 333\,322 \checkmark\text{CA} \end{aligned}$	1RT both values correct 1M multiplying 1CA people (3)	D L2
4.1.2	$\begin{aligned} \text{Number of people in Emalahleni} &= 2\,683 \times 170 \\ &= 456\,110 \checkmark\text{CA} \\ \text{Difference} &= 456\,110 - 333\,322 \checkmark\text{M} \\ &= 122\,788 \checkmark\text{CA} \\ \text{No, incorrect statement} & \checkmark\text{O} \end{aligned}$	1CA people 1M subtract 1CA difference 1O opinion (4)	D L4
4.1.3	$\begin{aligned} & \checkmark\text{RT} \\ \text{Houses with piped water} &= \frac{8}{100} \times 82\,738 \checkmark\text{MA} \\ &= 6\,619,04 \\ &= 6\,619 \text{ OR } 6\,620 \checkmark\text{A} \end{aligned}$	1RT for 8% 1MA multiplying by 82 738 1A answer (3)	D L2
4.1.4	$\begin{aligned} \text{Average annual income of Kansas City in rand:} \\ \frac{\$45\,376 \times R1}{\$0,067} & \checkmark\text{MA} \\ = R677\,253,73 & \checkmark\text{A} \\ \text{Difference} &= R677\,253,73 - R57\,300 \checkmark\text{M} \\ &= R619\,953,73 \checkmark\text{CA} \end{aligned}$	1MA correct exchange rate 1A correct income 1M subtract 1CA difference (4)	F L3
4.1.5	$\begin{aligned} 100\% - 98,6\% & \checkmark\text{MA} \\ = 1,4\% & \checkmark\text{A} \end{aligned}$	1MA subtracting from 100 1A correct probability (2)	P L2
4.2.1	$\begin{aligned} & \checkmark\text{RT} \\ \text{Percentage increase} &= \frac{R12,02 - R15,84}{R15,84} \times 100\% \checkmark\text{SF} \\ &= -24,12\% \checkmark\text{CA} \end{aligned}$	1RT correct values 1SF correct in formula 1CA correct percentage [Accept -24,1 or -24,116] NPR (3)	F L2
4.2.2	Inland prices are higher due to higher transport / storage costs. $\checkmark\checkmark\text{O}$ <p style="text-align: center;"><b>OR</b></p> Most refineries are along the coast. <p style="text-align: center;"><b>OR</b></p> Any relevant answer.	2O explanation (2)	F L4

Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
4.2.3	$\frac{161,82 + A}{12} = R14,75$ $161,82 + A = R14,75 \times 12$ $A = 177 - 161,82$ $A = R15,18$	1A total of the year 1MA dividing by 12  1M subtract from 177 1CA value of A	D L3   (4)
4.2.4	Petrol used: 100 km : 10,5 litre 750 km : $\frac{750 \times 10,5}{100}$ $= 78,75$ litre Cost of petrol: 78,75 litre $\times$ R15,52 $= R1\ 222,20$ Yes, the subsidy was enough.	1MA correct exchange 1CA litre  1MA multiply by R15,52 1CA total cost 1O opinion	F L4   (5)
		(4)	(5)
		<b>[30]</b>	



Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
5.2.1b	Total cost = R1 000 + R191,29 × 50 ✓ <b>SF</b> = R10 564,50 ✓ <b>A</b>	1SF correct substitution 1A total cost (2)	F L2
5.2.2	$A = \frac{R6\,300}{R315}$ ✓ <b>MA</b> = 20 athletes ✓ <b>A</b>  $B = 35 \times R315$ ✓ <b>MA</b> = R11 025 ✓ <b>A</b>	1MA dividing by R315 1A athletes  1MA multiplying by R315 1A athletes (4)	F L2
5.2.3	The break-even point refers to the amount of income Jakes need to generate, to cover the total fixed and variable expenses of the camp. ✓✓ <b>O</b>  <b>OR</b> When Jakes reaches a break-even point for the camp, his total income will be equal to his total costs.  <b>OR</b> The break-even point can be defined as a point where total costs (expenses) of the camp and total income (revenue) of the camp are equal. <b>OR</b> The break-even point is when no money is lost or gained by Jakes.	2O correct definition          (2)	F L1
5.3.1	12-13 years age group = 100% – (14+50+12+4)✓ <b>MA</b> = 20% ✓ <b>CA</b>	1MA subtracting correct values 1CA correct difference (2)	D L1
5.3.2	Probability = 14%+50% ✓ <b>MA</b> = 64% ✓ <b>CA</b> = 0,64 ✓ <b>CA</b>	1MA adding correct values 1CA correct percentage 1CA decimal (3)	P L2
5.3.3	Total athletes >17 years = $\frac{16}{100} \times 50$ ✓ <b>MA</b> = 8 athletes ✓ <b>CA</b>	1MA multiplying by correct percentage 1CA athletes (2)	D L2
		[32]	
		<b>TOTAL: 150</b>	