education

Department of Education
FREE STATE PROVINCE

PREPARATORY EXAMINATION/
VOORBEREIDENDE EKSAMEN

GRADE 12/*GRAAD 12*

MATHEMATICAL LITERACY P1/
WISKUNDIGE GELETTERDHEID V1

SEPTEMBER 2022

MARKING GUIDELINES/
NASIENRIGLYNE

MARKS/*PUNTE*: 150

Symbol/*Kode*	**Explanation/*Verduideliking***
M	Method/*Metode*
MA	Method with accuracy/*Metode van akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/graph/diagram/*Lees vanaf tabel/grafiek/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in'n formule*
O	Opinion/Example/Definition/Explanation/*Opinie/Voorbeeld/Definisie/Verduideliking*
P	Penalty, e.g., for no units, incorrect rounding off, etc./*Penalisasie, bv. vir geen eenhede,verkeerde afronding ens.*
R	Rounding off/A*fronding*
NPR	No penalty for correct rounding/*Geen penalisering vir korek afronding nie*
NPU	No penalty for the units/*Geen penalisering vir eenhede nie*
AO	Answer only, if correct, full marks/*Slegs antwoord, indien korrek, volpunte*
MCA	Method with consistent accuracy/*Metode met volgehoue akkuraatheid*

These marking guidelines consists 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.
- General principle of marking, if the candidate makes one mistake, he loses one mark.

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 by die tweede berekeningsfout op.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart neem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *Die algemene beginsel van merk as 'n leerder een fout maak verloor hy een punt.*

QUESTION/*VRAAG* 1 [30 MARKS/*PUNTE*]		**ANSWER ONLY = FULL MARKS**	
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1.1	**Debit** is the amount charged for school fees/ ✓✓O **Debit** is the amount charged for hostel fees ***Debiet*** *is die bedrag gehef vir skoolfooie/* ***Debiet*** *is die bedrag gehef vir koshuisfooie*	2O correct explanation (2)	F L1
1.1.2	Quarterly ✓✓A *Kwartaalliks*	2A correct answer (2)	F L1
1.1.3	Hostel fees ✓✓A *Koshuisfooi*	2RT correct descriptor (2)	F L1
1.1.4	Monthly payment = $\frac{\text{R12 540}}{11}$ ✓A ✓A *Maandelikse betaling* = R1 140 ✓CA	1A numerator 1A denominator 1CA monthly payment **NPU** (3)	F L1
1.1.5	Total amount = R12 540 + R5 100 ✓M ✓RT *Totale bedrag* = R17 640 ✓CA	1RT correct amounts 1M adding amounts 1CA simplification **NPU** (3)	F L1

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.2.1	✓A ✓A Compound bar graph *Saamgestelde staafgrafiek*	1A compound 1A bar (2)	D L1
1.2.2	✓✓A 18 years OR/OF 18 ✓✓A *18 jaar*	2A correct age NP for omitting years (2)	D L1
1.2.3	✓✓A Impossible/ 0/ 0% *Onmoontlik*	2A probability (2)	P L1
1.2.4	Five million four hundred and seventy-one thousand five hundred and thirty-nine ✓✓A *Vyfmiljoen vierhonderd een en sewentigduisend vyfhonderd nege en dertig*	2A number in words (2)	D L1
1.2.5	9✓✓A	2A correct number (2)	D L1
1.3.1	R23 699✓✓A	2A correct answer (2)	F L1
1.3.2	1 TB 512 GB 256 GB 128 GB ✓✓MA	2A correct values in the correct order (2)	D L1
1.3.3	✓MA Difference = R30 899 – R25 899 *Verskil* = R5 000✓CA	1MA subtracting correct amounts 1CA correct number of litres (2)	F L1
1.3.4	R24 000✓✓A	2R rounding **NPU** (2)	F L1

QUESTION/*VRAAG* 2 [42 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
2.1.1	**Income** is the amount earned for the domestic work done. ✓✓O ***Inkomste*** *is die bedrag verdien vir huiswerk wat gedoen is.*	2O explanation (2)	F L1
2.1.2	Deficit/*Tekort* ✓✓O	2O explanation (2)	F L1
2.1.3	**A** = $\frac{29,4}{100}$ × R1 800 ✓MA = R529,20 ✓CA **B** = R1 125 – R1 309,34 = - R184,34 ✓CA	1MA calculating percentage 1CA value of A 1CA value of B (3)	F L3
2.1.4	Food % = $\frac{R2\,473,75}{R2\,520}$ × 100 ✓RT ✓M *Voedsel* = 98 % ✓CA Difference = 98% – 21,0% ✓M *Verskil* = 77% ✓CA	1RT correct values 1M calculating percentage 1CA simplification 1M subtracting values 1CA simplification (5)	F L3
2.1.5	Probability = $\frac{2}{3}$ ✓A ✓A *Waarskynlikheid*	1A numerator 1A denominator (2)	P L2
2.1.6	They buy the same food items ✓✓O *Hulle koop dieselfde voedselitems* **OR/*OF*** They buy from the same shop ✓✓O *Hulle koop by dieselfde winkel* **OR/*OF*** The food is for four people ✓✓O *Die voedsel is vir vier persone* **OR/*OF*** They have same size family ✓✓O *Hulle families is dieselfde grootte*	2O opinion 1 2O opinion 2 (4)	F L4

2.1.7	Income = R27,00 × 8 × 15 ✓M *Inkomste* = R3 240 ✓CA Remaining money after expenses/ *Oorblywende geld na uitgawes* R3 240 – R1 309,34 – R2 473,75 ✓RT = -R543,09 ✓CA Her claim is not valid ✓O *Haar eis is nie geldig nie*	1RT correct values 1M multiplying values 1CA income 1CA difference 1O conclusion (5)	F L4

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.2.1	Value added tax ✓✓O *Belasting op toegevoegde waarde*	2O explanation (2)	F L1
2.2.2	9 kℓ ✓✓A	2A correct answer (2)	F L1
2.2.3	First 6 kℓ = 6 × R10,34 ✓MA *Eerste* = R62,04 ✓A Second 9 kℓ = 9 × R24,54 *Tweede* = R220,86 ✓CA Last 10 kℓ = 10 × R27,63 *Laaste* = R276,30 Total amount = R62,04 + R220,86 + R276,30 ✓M *Totale bedrag* = R559,20 ✓CA	**CA from Question 2.2.2** 1MA multiplying values 1A amount for first 6 kℓ 1CA amount for 9 kℓ 1M adding three values 1CA total amount (5)	F L3
2.3.1	Per annum ✓✓O *Per jaar*	2O explanation (2)	F L1
2.3.2	Interest = $\frac{17,5}{100}$ ✓A × R2 299 ✓MA *Rente* = R402,33 ✓CA	1A correct percentage 1MA calculating percentage 1CA simplification (3)	F L2
2.3.3	Option 2 = R216 × 24 ✓MA *Opinie 2* = R5 184 ✓A Difference = R5 184 – R2 299 ✓MCA *Verskil* = R2 885 ✓CA She is correct ✓O *Sy is reg*	1MA multiplying values 1A simplification 1MCA subtracting values 1CA 1O conclusion (5)	F L4

QUESTION/*VRAAG* 3 [32 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.1.1	✓✓O The data is measured and can include decimals. *Die data word gemeet en kan desimale insluit*	2O correct reason (2)	D L1
3.1.2	Northern Cape/*Noord-Kaap* ✓✓RT	2RT correct province (2)	D L1
3.1.3	✓MA 84 180,33 = (186 997 + 65 151 + 69 070 + **A** + 96 206 + 57 758 + 36 517 + 73 318 + 97 478)/9 ✓M 84 180,33 × 9 = 682 495 + **A** 757 622,97 = 682 495 + **A** ✓M **A** = 757 622,97 − 682 495 = 75 127,97 = 75 128✓CA	1MA mean concept 1M multiplying by 9 1M subtracting 1CA rounded value of **A** (4)	D L2
3.1.4	✓RT **B** = $\frac{402\,559}{2\,269\,115}$ × 100 ✓M = 17,7% ✓CA **OR/OF** ✓M ✓RT **B** = 100−15,7−3,9−8,8−0,9−32,2−0,3−15,3−5,2 = 17,7% ✓CA	1RT correct values 1M calculating percentage 1CA simplification 1RT correct values 1M subtracting from 100 1CA simplification **AO** (3)	D L2

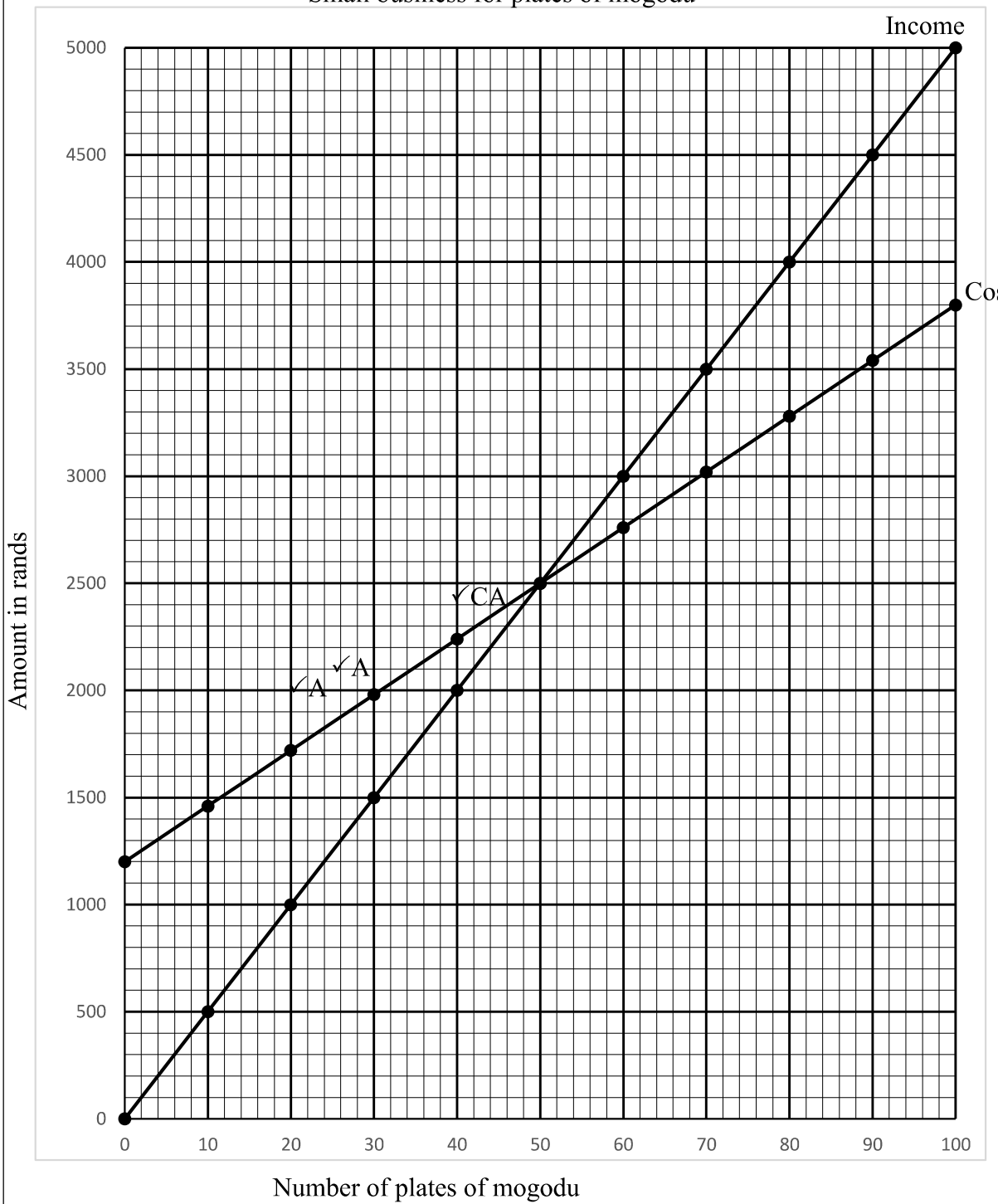
3.1.5	Western Cape/*Wes-Kaap* ✓RT ✓M 6 937: 186 997 1: 27 ✓CA Gauteng 2 291: 36 517 ✓M 1:16 ✓CA She is correct ✓O *Sy is reg*	1RT correct values 1M correct order 1CA simplification 1M correct values in the correct order 1CA simplification 1O conclusion (6)	D L4
3.1.6	Range = 2 454 122 ✓RT − 180 349 ✓M *Waardeversameling* = 2 273 773 ✓CA	1RT correct values 1M subtracting values 1CA simplification **AO** (3)	D L2
3.2.1	Buffalo population = $\frac{20,45}{100}$ ✓RT × 34,736 million ✓M *Buffelbevolking* = 7,104 million ✓CA ✓U **OR/*OF*** Buffalo population = $\frac{20,45}{100}$ ✓RT × 34 736 000 ✓M ✓M *Buffelbevolking* = 7 103 512 ✓CA	1RT correct percentage 1M multiplying by correct number 1CA simplification 1U writing million 1RT correct percentage 1M writing the number in full 1M multiplying by correct amount 1CA simplification **AO** (4)	D L2
3.2.2	Chicken/horses/donkeys/camels/ducks ✓✓O *Hoenders/perde/donkies/kamele/eende* **Any other relevant livestock/** **Enige relevante lewendehawe**	2O valid example (2)	D L1
3.2.3	Probability = $\frac{24,8\%}{35,94\%}$ ✓A ✓A *Waarskynlikheid* = 0,69 ✓CA	1A numerator 1A denominator 1CA simplification **NPR** **AO** (3)	P L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.2.4	New population $= \frac{15,7}{100} \times 34,736$ million ✓MA *Nuwe bevolking* $= 5,454$ million ✓CA $\therefore (34,736 + 5,454)$ million $= 40,190$ million ✓CA **OR/*OF*** New population $= \frac{15,7}{100} \times 34\ 736\ 000$ ✓MA *Nuwe bevolking* $= 5\ 453\ 552$ ✓CA $\therefore 34\ 736\ 000 + 5\ 453\ 552$ $= 40\ 189\ 552$ ✓CA **OR/*OF*** New population $= \frac{115,7}{100} \times 34,736$ million ✓A ✓M *Nuwe bevolking* $= 40,190$ million ✓CA **OR/*OF*** New population $= \frac{115,7}{100} \times 34\ 736\ 000$ ✓A ✓M *Nuwe bevolking* $= 40\ 189\ 552$ ✓CA	1MA calculating percentage 1CA simplification 1CA new population 1MA calculating percentage 1CA simplification 1CA new population 1A increased percentage 1M calculating percentage 1CA new population 1A increased percentage 1M calculating percentage 1CA new population **AO** (3)	D L2

QUESTION/*VRAAG* 4 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
4.1.1	weekly ✓✓RT *weekliks*	2RT correct answer (2)	D L1
4.1.2	76 ✓✓RT	2RT correct mode (2)	D L2
4.1.3	✓ A 14 660 16 360 20 250 20 330 24 695 28 435 30 685 Median = 20 330 ✓ A *Mediaan* Q1 = 16 360 ✓ A Q3 = 28 435 IQR = Q3 – Q1 = 28 435 – 16 360 ✓ SF = 12 075 ✓ CA	1A arranging values 1A median 1A quartile 1 OR quartile 3 SF substituting into the formula 1CA simplification (5)	D L3
4.2.1	R1 = £0,049 ✓✓A	2A correct exchange rate (2)	F L1
4.2.2	Price = $\frac{£250}{£0,049}$ ✓A × R1 ✓MA *Prys* = R5 102,04 ✓A	1A correct values 1MA dividing values 1A simplification (3)	F L2

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.3.1	Annual taxable income = R35 357,00 × 12 ✓MA *Jaarlikse belasbare inkomste* = R424 284 ✓A	1MA multiplying by 12 1A simplification (2)	F L1
4.3.2	Monthly Medical tax credits = (R332 × 2) + (R224 × 2) ✓RT ✓M ✓M *Maandelikse Mediese belastingkrediete* = R664 + 448 = R1 112 ∴ Yearly MTC/ = R1 112 × 12 ✓M ∴ *Jaarlikse MBK* = R13 344	1RT correct values 1M multiplying by 2 1M adding 1M multiplying by 12 (4)	F L3
4.3.3	Annual tax/*Jaarlikse belasting* = R70 532 + 31% of taxable income above/*van belasbare inkomste bo* 337 800 ✓A R70 532 + 31% (R424 284 – R337 800) ✓SF R70 532 + (31% × R86 484) ✓CA R70 532 + R26 810,04 = R97 342,04 ✓CA Tax payable/*Belasting betaalbaar* = R97 342,04 – R15 714 – R13 344 ✓MCA = R68 284,04 ✓CA	1A correct tax bracket 1SF correct substitution 1CA simplification 1CA tax before rebates 1MCA subtracting both rebates 1CA simplification (6)	F L3

QUESTION/*VRAAG* 5 [20 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
5.1	Total cost/*Totale koste* = R1 200 + 26m ✓SF R2 760 = R1 200 + 26m ✓MA R2 760 – R1 200 = 26m ✓CA R1 560 = 26m M = 60✓CA	 1SF correct substitution 1MA subtracting R1 200 1CA simplification 1CA number of plates (4)	F L2
5.2	✓✓A Income/*Inkomste* = R50 × number of plates/*aantal borde*	2A correct formula (2)	F L2
5.3.1	**Break-even** is where the cost of making mogodu is equal to the income of selling ✓✓O mogodu/ ***Gelykbreek*** *is waar die koste om mogodu te maak gelyk is aan die inkomste om mogodu te verkoops* ✓RT 50	2O correct explanation (2) 1RT correct break even (1)	F L2
5.3.2	Profit for 100 plates/*Wins per 100 borde* = ✓RT ✓MA R5000 – R3800 = R1 200 ✓CA Fraction of 100 plates/*Breuk vir 100 borde* = $\frac{1200}{3800}$ ✓M = $\frac{8}{25}$ ✓CA Her claim is correct ✓O *Haar eis is korrek*	 1RT correct values 1MA subtracting correct values 1A correct profit 1M numerator and denominator 1CA simplification 1O conclusion (6)	F L4
5.3.3	Line graph/*Lyngrafiek* ✓✓A	2A correct graph (2)	D L2

5.3.4	 1A for any 3 points plotted correctly/*1A vir enige 3 punte korrek geplot* 1A for other 7 points plotted correctly/*1A vir enige 7 punte korrek geplot* 1CA joining points/*1CA aansluitingspunte*	D L2

TOTAL/*TOTAAL*: 150

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