Department of Education

North West Province

REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE
NASIONALE SENIOR SERTIFIKAAT

GRADE/*GRAAD* 12

MATHEMATICAL LITERACY P2/
WISKUNDIGE GELETTERDHEID V2

SEPTEMBER 2023

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
M	Method/*Metode*
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/a graph/document/ diagram/*Lees vanaf tabel/grafiek/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in formule*
O	Opinion/Explanation/Reasoning/*Opinie/Verduideliking/Redenasie*
P	Penalty, e.g. for no units, incorrect rounding off, etc/*Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for correct rounding/*Geen penalisasie vir korrekte afronding nie*
AO	Answer only/*Slegs antwoord*

This marking guidelines consists of 11 pages.
Hierdie nasienriglyne bestaan uit 11 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.
- NOTE: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalie for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- Rounding is an independent mark.
- In opinion type questions marks will only be awarded if relevant calculations are shown.

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.*
- *LET WEL: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *'n Algemene nasien beginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.*
- *Afronding tel as 'n afsonderlike punt.*
- *In Opinie tipe vrae sal punte slegs toegeken word indien relefante berekeninge getoon word.*

QUESTION/*VRAAG* 1 [30 MARKS/*PUNTE*] Answer only AO – full marks			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1.1	Belfast ✓✓RT	2RT reading from table/*aflees van tabel* (2)	M L1 E
1.1.2	Noon✓✓RT *Middag* **OR/*OF*** 12 o'clock p.m. OR midday *12 uur in die middag*	2A correct answer/*korrekte antwoord* (2)	M L1 E
1.1.3	Sunday – 14 April 1912 struck an iceberg *Sondag – 14 April 1912 tref 'n ysberg* Left on maiden voyage 10 April 1912✓M *Vertrek op sy eerste reis 10 April 1912* The voyage started on a Wednesday✓A *Die reis het op 'n Woensdag begin.*	2A answer/*korrekte antwoord* (2)	M L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.1.4	Wednesday 12:00 till Thursday 12:00(24) + Friday 12:00 (24) + Saturday12:00 (24) ✓M+ Sunday 11:40 (23h40 min)✓A = 3(24 hours) + 23h40min = 95 hours 40 minutes ✓CA *Woensdag 12:00 tot Donderdag 12:00 (3* x *24)* ✓*M* *Sondag 11:40 (23uur 40 minute)* ✓*A* *= 95 uur 40 min*✓CA	1M Thurs to Saturday 1A Sunday 1CA total number of hours and minutes/*totale aantal ure en minute* (3)	M L1 E M
1.1.5	1 September 1985 – 15 April 1912 Number of years/*Aantal jare* = 1985 – 1912✓M = 73 years/*jaar*✓A	1MA subtracting/*aftrekking* 1A answer/*antwoord* (2)	M L1 E
1.1.6	Twelve fifteen in the afternoon *Kwart oor twaalf namiddag* ✓✓A	1A Twelve fifteen 1A p.m./*nm* (2)	M L1 E
1.2.1	$\frac{28}{28}$: $\frac{32}{28}$✓A **OR/*OF*** $\frac{28}{32}$: $\frac{32}{32}$ 1 : $\frac{8}{7}$ **OR/*OF*** $\frac{7}{8}$: 1 1 : 1,143 ✓CA **OR/*OF*** 0,875 : 1	1A correct values and order/*regte waardes en volgorde* 1CA correct form/*korrekte vorm* (2)	M L1 E
1.2.2	Officer's decks/*offisiere se dek* = 10 – 8 ✓MA = 2 ✓A	1MA subtracting/*aftrekking* 1A answer/*antwoord* (2)	M L1 E
1.2.3	Difference/*verskil* = 882 feet 9 inches – 92 feet 6 inches✓✓RT/M = 790 feet 3 inches✓CA *= 882 voet 9 duim – 92 voet 6 duim* *= 790 voet 3 duim*	1RT correct values/*korrekte waardes* 1MA subtraction/*aftrekking* 1CA simplification/*vereenvoudig* (3)	M L1 E
1.3.1	Limpopo River✓/*Limpopo Rivier* Orange River ✓/*Oranje Rivier*	1RT reading from map/*lees kaart* 1RT reading from map/*lees kaart* (2)	MP L1 E
1.3.2	Indian Ocean✓✓RT/*Indiese Oseaan*		MP L1

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		2RT reading from map/*aflees van kaart* (2)	E
1.3.3	Robben Island✓✓RT/*Robben eiland*	2RT read from map/*lees van kaart* (2)	MP L1 E
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.3.4	Drakensberg✓✓RT	2RT read from map/*lees van kaart* (2)	MP L1 E
1.3.5	Bar scale is easy to use✓✓A/*maklik om te gebruik* **OR/*OF*** It remains accurate during enlargement of reduction/*bly akkuraat indien vergroot of verklein word* **OR/*OF*** Able to determine lengths/distances in reality with calculations/*kan lengtes/afstande in werklikheid met bewerkings bereken*.	2A correct advantage/*korrekte voordeel* (2)	MP L1 E
		[30]	

QUESTION/*VRAAG* 2 [37 MARKS/*PUNTE*]

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
2.1.1	6 airports ✓✓A/*lughawens*	2A correct answer/*korrekte antwoord* (2)	MP L1 E
2.1.2	SE/*SO*✓✓RM	2A correct direction/*regte rigting* (2)	MP L2 M
2.1.3	Durban to Nelspruit – 1 hour/*uur* Nelspruit to Johannesburg – 50 min✓RT Johannesburg to Hoedspruit – 1 hour/*uur* Total: 1 hour + 50 min + 1 hour✓MA = 2 hours 50 min✓CA	1RT reading correct times from map/*lees korrekte tye vanaf die kaart* 1MA adding time/*tel tyd op* 1CA answer/*antwoord* **AO** (3)	MP L2 E
2.1.4	Time taken/*tyd geneem* = 7:59 + 2:50✓MCA = 9 hours/*uur* 109 minutes/*min* 109 minutes – 60 minutes (1 hour/*uur*)✓C 10:49✓CA	**CA from 2.1.3** 1MCA add time/*tel tyd op* 1C converting 109 minutes 1CA answer/*antwoord*	M L2 M

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		AO (3)	





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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.1.5	Duration of trip/*duur van vlug* = 14:21 – 12:41✓MA = 1h40✓A Stoppage time/*tyd stilgehou* = 45 min✓RT Time spent on the road/*tyd op die pad spandeer* = 1h40 – 45 min = 55 min✓CA D = s × t/$A = s \times t$ ✓M D = 90 × $\frac{55}{60}$✓C D = 90 × 0,916667✓SF = 82,5 km ✓CA	1MA subtraction/*aftrekking* 1A answer/*antwoord* 1RT stoppage time/*stilhou tyd* 1CA time spent on road/*tyd op die pad spander* 1M changing subject/*verander onderwerp* 1C conversion/*omskakeling* 1SF substitute into formula/*vervang in formule* 1CA answer/*antwoord* (8)	MP L3 D
2.1.6 (a)	P = 0,652 × 100✓MA = 65,2%✓A	1MA multiplying/*vermenigvuldig* 1A answer/*antwoord* (2)	P L2 M
2.1.6 (b)	No/*Nee*✓O There is still a 34,8% chance that it might not rain.✓✓A */Daar is 'n 34,8% kans dat dit nie gaan reën nie* **OR/*OF*** It is not certain /100% that it will rain. *Dit is nie seker nie/100% dat dit gaan reën*	1O opinion/*opinie* 2A correct reason/*korrekte rede* (3)	P L4 M
2.2.1	6 doors/*deure* ✓✓RT	2RT reading from map/*lees van kaart* (2)	MP L1 E
2.2.2	A01✓RT B01✓RT	1 RT first seat number/*eerste sitplek nommer* 1RT second seat number/*tweede sitpleknommer* (2)	MP L1 E
2.2.3 (a)	Number Scale/*Nommerskaal*✓A 1 unit on the plan represents 450 units in reality/ *1 eenheid op die plan stel 450 eenhede in die werklikheid voor*✓A	1A answer/*antwoord* 1A correct explanation/ *verduideliking* (2)	MP L1 E

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.2.3 (b)	1 : 450 Convert 50 m to mm 50 ×1000 ✓C $\frac{50\,000}{450}$ ✓MCA = 111,11 ✓CA ≈ 110 mm✓R **OR/*OF*** 50 m = map length × 450✓SF Map length = $\frac{50}{450}$✓M = 0,11111111 cm ×1 000 = 111,111….mm✓C ≈ 110 mm✓R	1C conversion/*herlei* 1MCA divide by scale/*deling deur skaal* 1CA answer/*antwoord* 1R rounded/*afronding* **OR/*OF*** 1SF substitute/*vervang in formule* 1M divide by scale/*deling met skaal* 1C conversion/*herlei* 1R rounded/*afronding* (4)	MP L3 M
2.2.4	36 sockets/*proppe*✓✓RT	2RT from map/*lees vanaf die kaart* (2)	MP L2 E
2.2.5	B✓26✓RT	2A correct seat number/*regte sitpleknommer* (2)	MP L2 M
		[37]	

QUESTION/*VRAAG* 3 [27 MARKS/*PUNTE*]

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.1.1	r = $\frac{d}{2}$ **OR/*OF*** r = 7,6 cm ÷ 2 76 ÷ 2✓MA = 38 mm✓A = 3,8 cm	1MA divide by 2/*deel deur 2* 1A answer/*antwoord* (2)	M L1 E
3.1.2	Volume of cylinder = $\pi \times r^2 \times h$ =3,142 × 38^2 × 70✓SF = 317 593,36 $mm^3 \div 10^3$ ✓C = 317,593 cm^3✓CA **OR/*OF*** Volume = 3,142 × (3,8 cm)^2 × 7 cm = 317,593 cm^3	**CA from question 3.1.1** 1SF substitute into the formula/*vervang in die formule* 1C convert to cm/*skakel om na cm* 1CA correct answer /*korrekte antwoord* (3)	M L2 M
3.1.3	6 sides/*kante* ✓✓A	2A answer/*antwoord* (2)	M L1 E

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.1.4 (a)	Sum of the areas of all the faces of a cube/*som van al die oppervlaktes van die vlakke van 'n kubus*.✓✓A	2A correct definition (2)	M L1 E
3.1.4 (b)	Area of a square/*Oppervlakte van 'n vierkant* = 55 mm × 55 mm✓SF = 3 025 mm^2✓A Total Surface area/*totale buite oppervlak* = 6 × 3 025 mm^2 = 18 150 mm^2✓CA	**CA from 3.1.3** 1SF substitute into the formula/*vervang in die formule* 1A answer/*antwoord* 1CA answer/*antwoord* (3)	M L2 M
3.2.1	6 minutes 53 seconds = (6 × 60)✓C + 53 = 413 seconds✓A	1C to seconds/*na sekondes* 1A answer in seconds/*in sekondes* (2)	M L2 E
3.2.2	10,8 + 13,6 + 16,1 + 23,1 + 23,2 + 23,9 + 24,3 + 24,8 + 26,7 + 29,3✓MA = 215,8✓S = 215,8 ÷ 60 = 3,596666667 min✓C = 3 + 0, 596666667 × 60 = 3 + 35,8 = 3 min 35,8 sec✓CA	1MA add all the values/ *tel al die waardes bymekaar* 1S simplification/*vereenvoudig* 1C convert min to seconds/*skakel om na sekondes* 1CA answer/ *antwoord* (4)	M L3 D
3.2.3	10 min 13 seconds – 9 min 59 seconds✓MA = 14 seconds✓A His statement is incorrect✓O/*stelling is verkeerd*	1MA subtract correct values/ *trek regte waardes af* 1A answer/ *antwoord* 1O opinion/ *opinie* (3)	M L4 E
3.2.4	$P = \frac{3✓}{10✓}$ A = 0,3 ✓CA	1A numerator/*noemer* 1A denominator/*teller* 1CA answer/ *antwoord* (3)	P L2 M
3.2.5	Statement is true/*stelling waar*✓O 7 players completed the puzzle in a time longer than 20 minutes.✓✓A /*7 spelers het die legkaart in langer as 20 minute voltooi*	1O opinion/ *opinie* 2A correct reason/*korrekte rede* (3)	M L4 M
		[27]	

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QUESTION/*VRAAG* 4 [27 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
4.1.1	2 pools/*swembaddens* ✓✓RT	2RT reading from map/*lees vanaf die kaart* (2)	MP L1 E
4.1.2 (a)	Clipper deck: 2(17) + 2 = 36 Main deck: 6 Sun deck: 2 Total = 36 + 6 + 2✓MCA = 44 cabins/*kajuite*✓A	1RT correct number of cabins in all decks 1MCA adding/*optel* 1CA total of cabins/*totale antal kajuite* (3)	MP L2 M
4.1.2 (b)	Number of windows/*aantal vensters* = 36 – 14✓MCA = 22✓CA	**CA from 4.1.2.(a)** 1MCA subtraction/*aftrekking* 1CA answer/*antwoord* (2)	MP L2 E
4.1.3	A = length × width/*lengte* × *breedte* Width = 180 feet✓A = 360' × 180' ✓SF = 64 800 feet^2✓S Dining hall is $\frac{1}{3}$ of total deck/*eetsaal* = $\frac{1}{3}$ × 64 800✓MCA = 21 600 feet^2✓CA	1A width/*breedte* 1SF substitute into formula/*vervang in die formule* 1S simplification/*vereenvoudig* 1MCA multiply by $\frac{1}{3}$/*vermenigvuldig* 1CA answer/*antwoord* (5)	M L3 D
4.1.4	1 feet/*voet* = 0,3048 m 21 600 feet^2× 0,3048^2✓MCA = 2 006,70705665✓CA ≈2 007 m^2✓R	**CA from 4.1.3** 1MCA multiply by ratio^2/*vermenigvuldig met vierkante skaal* 1CA answer/*antwoord* 1R rounded/*afronding* (3)	M L3 D

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.1.5	Grey Vinyl/*Grys Vinyl* 1,83 m × 5 m = 9,15 m^2✓A $\frac{2\,007}{9.15}$ = 219, 344 boxes✓MCA ≈ 220 boxes✓CA 220 × R842 = R185 240✓CA Grey Vinyl tiles will cost less than the estimated R250 000.✓O /*Die grys vynil teëls kos minder as die begrote bedrag van R250 000.*	**CA from 4.1.4** 1A area/*oppervlakte* 1MCA division/*deling* 1CA boxes/*bokse* 1CA cost/*koste* 1O opinion/*opinie* (5)	M L4 D
4.2.1	Perimeter/*omtrek* = 2 × (270 cm + 90 cm✓ RT)✓SF = 720 cm	1RT correct values/*korrekte waardes* 1SF substitution/*vervang* (2)	M L2 E
4.2.2	Lengthwise/*lengte* = $\frac{270\text{ cm}}{60{,}96\text{ cm}}$✓MA = 4,42913… = 4✓A Widthwise/*breedte* = $\frac{90\text{ cm}}{60{,}96\text{ cm}}$ = 1,4763… = 1✓A Total/*totaal* = 4 + 4 + 1 + 1✓MCA = 10 people/*mense*✓CA	1MA dividing/*deling* 1A answer/*antwoord* 1A answer/*antwoord* 1MCA adding/*optelling* 1CA simplification/*vereenvoudig* (5)	M/F L3 M
		[27]	

QUESTION/*VRAAG* 5 [33 MARKS/*PUNTE*]

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
5.1.1	Madikwe Game Reserve✓✓A	2A correct answer/*regte antwoord* (2)	MP L1 E
5.1.2	Gobabis✓✓A	2A correct town/*regte dorp* (2)	MP L2 E

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
5.1.3	Distance/*afstand* = 105 km + (648 km – 279 km) ✓MA+ 45 km + 455 km = 105 km + 369 km + 45 km + 455 km✓MCA = 974 km✓CA In miles/*myle* : 974 ÷ 1,609✓MCA = 605,3449347 miles/*myl*✓CA	1MA subtraction/*aftrekking* 1MCA addition/*optelling* 1CA simplification/*vereenvoudig* 1MCA dividing/*deling* 1CA answer/*antwoord* (5)	MP L3 M
5.1.4	Strip chart is not drawn to scale✓✓A /*strookkaart word nie volgens skaal geteken nie*	2A correct reason/*korrekte rede* (2)	MP L4 D
5.2.1	Area of a window/*oppervlakte van venster* = 170 cm × 140 cm **OR/*OF*** 1,7 m × 1,4 m✓SF = 23 800 cm^2 = 2,38 m^2 2,38 m^2✓A Area of door opening/*oppervlakte van deurspasie* = 109,5% × 2,38 m^2✓MCA = 2,6061 m^2✓CA 2,14 m × width/*breedte* = 2,6061 m^2 Width/*breedte* = 2,6061 m^2 ÷ 2,14 m✓M = 1,217803738 m = 1,22 m✓CA	1SF substitution/*vervang* 1A simplification/*vereenvoudiging* 1MCA multiplying/*vermenigvuldig* 1CA simplification/ *vereenvoudiging* 1M subject of the formula/*onderwerp van die formule* 1CA answer/*antwoord* (6)	M L3 D
5.2.2	Amount of paint needed/*hoeveelheid verf benodig* = 54,28 m^2 ÷ 3 m^2✓MA = 18,0933333 litres✓A Two coats/*twee lae verf* = 18,0933333 × 2✓MCA = 36,186666667 litres✓CA Number of 5ℓ buckets/*Aantal emmers verf benodig* = 36,1866667 ÷ 5✓MCA = 7,23733333 buckets/*emmers* ≈ 8 buckets needed/*emmers benodig*✓CA His statement is not correct/*Sy stelling is verkeerd*✓O	1MA dividing/*deling* 1A answer/*antwoord* 1MCA multiplying /*vermenigvuldig* 1CA answer/*antwoord* 1MCA dividing/*deling* 1CA answer/*antwoord* 1O opinion/*opinie* (7)	M L4 D

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
5.2.3	Total hours worked/*Totale ure gewerk* $= 6 + (6 \times 1\frac{1}{2})$✓MA = 15 hrs✓CA Cost /*Koste* = 15 × R75,90 = R1 138,50✓CA Invoice/*Faktuur* = R1 238,50✓A Invoice is not correct/*Faktuur is foutief.*✓O **OR/*OF*** Saturday charge/*Saterdag betaling* = R75,90 + (0,5 × R75,90) = R113,85 Saturdays' cost/*Saterdag se kostes* = 6 × R113,85 = R683,10✓A Friday cost/*Vrydag se kostes* = 6 × R75,90 = R455, 40✓A Total cost/*Totale koste* = R683,10 + R455,40 = R1 138,50✓CA Invoice is not correct/*Faktuur is foutief*✓O **OR/*OF*** Total paid/*totaal betaal* $= 6 \times$ R75,90 ✓A + $6 \times 1\frac{1}{2} \times$ R75,90✓A = R1 138,50✓CA Invoice is not correct✓O/*Faktuur is foutief*	1MA multiplying and adding/*vermenigvuldig en optel* 1CA answer/*antwoord* 1CA cost/*Koste* 1A invoice/*faktuur bedrag* 1O opinion **OR/*OF*** 1A Saturday cost/*Saterdag se kostes* 1A Friday cost/*Vrydag se kostes* 1CA total cost/*totale kostes* 1O opinion/*opinie* **OR/*OF*** 1A Friday cost/*Vrydag se kostes* 1A Saturday cost/*Saterdag se kostes* 1CA total cost/*totale kostes* 1O opinion/*opinie* (5)	M/F L4 M
		[29]	
		TOTAL/*TOTAAL*: 150	

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