basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/
NATIONAL SENIOR CERTIFICATE EXAMINATIONS
SENIORSERTIFIKAAT-EKSAMEN/
NASIONALE SENIORSERTIFIKAAT-EKSAMEN

MATHEMATICAL LITERACY P2/
WISKUNDIGE GELETTERDHEID V2

MAY/JUNE/*MEI/JUNIE* 2024

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
MA	Method with accuracy/*Metode met 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*
NPU	No penalty for omitting correct unit/*Geen penalisasie vir die uitlos van die korrekte eenheid nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with constant accuracy/*Metode met volgehoue akkuraatheid*
RCA	Rounding consistent with accuracy/*Afronding met volgehoue akkuraatheid*

These marking guidelines consist of 18 pages and 2 pages with notes.
Hierdie nasienriglyne bestaan uit 18 bladsye en 2 bladsye met notas.

	External Moderators		Internal Moderators	
APPROVED ON 14 May 2024	R I Singh	E Cronje	L R deWaal	S Tune

DBE JM DBE JM

Please turn over/*Blaai om asseblief*

UMALUSI
EXT. MODERATOR
R. I. SINGH

UMALUSI
EXT. MODERATOR
E.D. CRONJE

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 did NOT redo 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 or breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise 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.
- A conclusion mark can only be given if relevant calculations precede it (at least 1 mark before conclusion).
- Rounding is an independent mark.
- No penalty for rounding (NPR) if the first decimal is correct, except questions involving money.

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 of afbreuk 'break down' nie*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *'n Algemene nasienbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor*
- *'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan (ten minste een punt voor die gevolgtrekking).*
- *Afronding tel as 'n onafhanklike punt.*
- *Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie, behalwe as vrae geld insluit.*

QUESTION/*VRAAG* 1 [26 MARKS/*PUNTE*] Answer Only AO - full marks			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1*	1.1.1 E ✓✓A 1.1.2 G ✓✓A 1.1.3 F ✓✓A 1.1.4 B ✓✓A	2A correct option 2A correct option 2A correct option 2A correct option (8)	M L1 P L1 M L1 M L1
1.2.1	✓✓A Numerical /Number/ ratio scale. *Numeriese- / Nommer- /Getalle- /syfer-/verhouding-skaal.*	2A type of scale (2)	MP L1 E
1.2.2	✓✓A 1 unit on the map is equivalent to 50 000 units in real life. *1 eenheid op die kaart is gelykstaande aan 50 000 eenhede in werklikheid* **OR/*OF*** The map is 50 000 times smaller than real life. *Die kaart is 50 000 keer kleiner as werklikheid*	2A relationship (2)	MP L1 M

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.2.3*	1: 25 000 ✓✓ A	2A correct scale (Accept B) (2)	MP L1 E
1.3.1*	✓A ✓A Rectangle and a circle. *Reghoek en 'n sirkel*	1A rectangle 1A circle (2)	M L1 E
1.3.2	✓✓A 144 km	2A correct answer Accept 144 (2)	MP L1 E
1.3.3*	It is the maximum speed a motorist can travel on the road. ✓✓A *Dit is die maksimum spoed wat 'n motoris mag ry op die pad.* **OR/*OF*** The motorist can cover a distance of 120 km in 1 hour. *Die motoris kan 120 km aflê in 1 uur*	2A correct explanation. (2)	MP L1 M
1.3.4*	Distance/*Afstand* (Jhb – Trompsburg) = 534 – 27 ✓ RT = 507 km ✓ A	1RT both correct values 1A distance **NPU** (2)	M L1 M
1.3.5	North /N/*Noord / N* ✓✓A	2A correct direction (2)	MP L1 E
1.3.6	$\frac{90\ cm}{100}$ ✓MA = 0,9 m ✓A	1MA dividing by 100 1A simplification (2)	M L1 E
			[26]

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QUESTION/*VRAAG* 2 [29 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
2.1.1	2 ✓✓A	2A correct number (2)	MP L1 E
2.1.2	6 ✓✓A	2A correct road (2)	MP L1 M
2.1.3*	7 ✓✓A	2A correct number (2)	MP L1 E
2.1.4*	C ✓✓A	2A correct choice (2)	P L2 M
2.1.5	South East (SE) / *Suidoos (SO)* ✓✓A	2A correct direction (2)	MP L2 M
2.1.6	Length / *Lengte* = 65 m = 65 000 mm ✓C Scale/ *Skaal*: 1 : 8 000 n : 65 000 $n = \frac{65\,000}{8\,000}$ ✓MA = 8,125 mm ✓CA ≈ 8 mm ✓R **OR/*OF*** Scale/*Skaal*: 1 : 8 000 n : 65 $n = \frac{65}{8\,000}$ ✓MA = 0,008125 m ✓CA = 8,125 mm ✓C ≈ 8 mm ✓R	1C conversion 1MA dividing 1CA simplification 1R rounding **OR/*OF*** 1MA dividing 1CA simplification 1C conversion 1R rounding (4)	MP L3 M

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
2.2*	2.2.1 C ✓A 2.2.2 E ✓A 2.2.3 D ✓A 2.2.4 B ✓A 2.2.5 A ✓A	5A correct order (5)	MP L2 M
2.3*	Only use the go cart on level ground. / smooth, flat, hard, tarred, road surface ✓✓O *Gebruik die knortjor slegs op gelyke grond/ gladde , plat, harde, pad, geteerde oppervlakte* **OR/*OF*** Do not use the vehicle on a long grassy surface. *Moet nie in lang gras ry nie.*	2O Explanation for 1st picture **or** for 2nd picture (2)	MP L4 E
2.4.1	$X = 2\,840 - 1\,476 - 1\,024 = 340$ ✓MA ✓CA **OR/*OF*** $X = 565 - 163 - 62 = 340$ ✓MA ✓CA	1MA subtracting from total 1CA simplification AO (2)	P L1 E
2.4.2	$P_{(\text{not a horse})} = \frac{2\,840+796}{4\,996}$ ✓RT ✓RT $= \frac{3\,636}{4\,996}$ $= \frac{909}{1\,249}$ ✓A **OR/*OF*** $P_{(\text{horse})} = \frac{1\,360}{4\,996}$ ✓RT $P_{(\text{not a horse})} = 1 - \frac{1\,360}{4\,996}$ ✓MCA $= \frac{909}{1\,249}$ ✓A	1RT numerator 1RT denominator 1A simplification **OR/*OF*** 1RT both values 1MCA subtracting from 1 1A simplification (3)	P L2 M
2.4.3	$P = \frac{363}{796} \times 100\%$ ✓RT ✓RT $= 45{,}60301508\ \%$ ✓CA	1RT 1st value 1RT 2nd value correctly place 1CA simplification **NPR** (3)	P L3 M
			[29]

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QUESTION/*VRAAG* 3 [33 MARKS/*PUNTE*]]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.1.1	2 000 kW ✓✓RT	2RT correct kW NPU (2)	M L1 E
3.1.2	To allow rotor blade to produce more energy. ✓✓O *Om met die rotorlem meer energie op te wek.* **OR/*OF*** Advanced technology to have material that can allow a big structure to stand firm on the ground. *Verbeterde tegnologie om materiaal te hê wat toelaat dat so 'n groot struktuur standvastig kan staan* **OR/*OF*** Larger rotor diameters allow wind turbines to sweep more area, capture more wind and produce more electricity *Groter rotormiddellyne laat die windturbines 'n groter area dek, meer wind vang en so meer krag opwek* **OR/*OF*** Demand for electricity increased/ demand for cleaner electricity *Verhoogde aanvraag vir elektrisiteit/ aanvraag vir skoner elektisiteit*	2O reason (more electricity) (2)	M L4 E
3.1.3	Max. height (in m) = Poles height + radius of rotor *Maks. Hoogte (in m) = Paal hoogte + radius van rotor* ✓ RT $= 114 + \frac{124}{2}$ ✓MA $= 114 + 62$ $= 176$ ✓CA **OR/*OF*** Pole + rotor/ *Paal + rotor* =124 + 114 ✓ RT = 238 Maximum height /*Maksimum hoogte* in m = 238 – (124÷2) ✓MA = 238 – 62 = 176 ✓CA	1RT both correct values 1MA divide by 2 to determine the radius 1CA simplification **OR/*OF*** 1RT both correct values 1MA divide by 2 to determine the radius 1CA simplification **AO** (3)	M L2 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.1.4*	Radius $= \frac{124}{2} = 62$ ✓ A Area /*Oppervlakte* $= 3{,}142 \times (62)^2$ ✓ SF $= 12\,077{,}848\ m^2$ ✓ CA ✓ O Not valid. / *Nie geldig nie*	1A radius 1SF substitution squared 1CA simplification 1O invalid (4)	M L4 M
3.1.5	✓ RT % increase/*verhoging* $= \frac{5\,000 - 800}{800} \times 100\%$ ✓ MA ✓ A $= 525\ \%$ ✓CA **OR/*OF*** Current percentage / *Huidige persentasie* ✓RT $= \frac{5\,000}{800} \times 100\%$ ✓A $= 625\%$ % increase/*verhoging* 625% – 100% ✓ MA = 525 % ✓CA	1RT 1st correct value 1A denominator 1MA percentage 1CA simplification **OR/*OF*** 1RT 1st correct value 1A denominator 1MA percentage difference 1CA simplification (4)	M L2 M
3.1.6*	✓✓ A Generators **OR** solar power **OR** hydro-power **OR** nuclear power *Kragopwekkers **OF** sonkrag **OF** hidro-elektrisiteit **OF** kernkrag*	2A source (2)	M L1 E
3.2.1	✓ RT ✓ SF Perimeter/*Omtrek* $= 2 \times (2{,}3 + 2{,}3 + 2{,}3 + 3)$ m ✓ MA $= 2 \times (6{,}9 + 3)$ m $= 19{,}8$ m ✓ CA **OR/*OF*** Perimeter/*Omtrek* ✓ RT ✓ SF $= 3 + 2{,}3 + 2{,}3 + 2{,}3 + 3 + 2{,}3 + 2{,}3 + 2{,}3$ m ✓MA = 19,8 m ✓CA	1RT correct values 1SF substitution 1MA 6,9 1CA answer **OR/*OF*** 1RT correct values 1SF substitution 1MA 6,9 1CA answer (4)	M L2 E
3.2.2*	✓RT ✓ A 5 + 7 + 4 = 16 boards /*planke* ✓CA	1RT correct numbers 5 and 7 1A on 4 1CA simplification adding **AO** (3)	M L3 M

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Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
(3.2.3)	Height /*hoogte* B= $\frac{5}{7} \times 0{,}5$ m $= 0{,}3571428571$ m ✓ A	1A height box B	M L3 D
	Vol B = ($2{,}3 \times 3 \times 0{,}3571428571)m^3$ $= 2{,}464285714m^3$ ✓ CA	1CA volume of B box	
	Vol A = $(2{,}3 \times 3 \times 0{,}5)\ m^3$ ✓ SF $= 3{,}45m^3$ ✓ A	1SF volume of A box 1A simplification 3,45	
	Total/*Totaal* = $2{,}4642514m^3 + 3{,}45m^3$ $= 5{,}914285714m^3$ ✓ CA	CA total volume	
	Capacity / *Kapasiteit* = 1 000 × 5,914285714 = 5 914,285714 litres. ✓ CA	1CA answer in litres	
	OR/*OF*	**OR/*OF***	
	Height of section B/ *Hoogte van boks B* $= \frac{5}{7} \times 0{,}5$ m = 0,3571428571 m ✓ A	1A height box B	
	Vol = (length×width×height) + (length×width×height) ✓ SF = (2,3 m × 3 m × 0,357… m) + (2,3 × 3 m × 0,5 m) ✓ CA ✓ A = (2,464285714 + 3,45) m^3. ✓ CA = 5,914285714 m^3	1SF volume of A box 1CA volume of B box 1A $3{,}45m^3$ 1CA total volume	
	Capacity / *Kapasiteit* = 1 000 × 5,914285714 = 5 914,285714 litres. ✓ CA	1CA answer in litres	
	OR/*OF*	**OR/*OF***	
	Volume A = length × width × height/ *lengte* × *breedte* ×*hoogte* = (3 m × 2,3 m× 0,5 m) ✓SF = 3,45 m^3 ✓A ∴ 3 450 litres ✓C	1SF volume of A box 1A simplification 3,45 1C conversion	
	Volume B = $\frac{3\,450\,\ell}{7} \times 5$ ✓A	1A ratio	
	= 2 464,285714 litres ✓CA	1CA volume box B	
	∴ *Total* = 3 450 + 2 464,285714 = 5 914,285714ℓ ✓ CA	1CA answer in litres **NPR**	
		(6)	

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UMALUSI EXT. MODERATOR E.D. CRONJE

UMALUSI EXT. MODERATOR R. I. SINGH

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.3*	$°C = \frac{5}{9} \times (°F - 32°)$ ✓ SF $70° = \frac{5}{9} \times (°F - 32°)$ $70° \times \frac{9}{5} = °F - 32$ ✓ MA $126° = °F - 32$ $°F = 158$ ✓ CA	1SF substituting in formula 1MA changing subject 1CA answer (3)	M L2 M
		[33]	

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UMALUSI EXT. MODERATOR R. I. SINGH

QUESTION/*VRAAG* 4 [33 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
4.1.1	✓RT ✓RT 30 : 6 = 5 : 1 ✓A	1RT 30 1RT 6 1A simplification (3)	MP L2 E
4.1.2	✓✓A ✓A Reading room and computer lab *Leeskamer en rekenaarlokaal*	2A 1st room 1A second room (3)	MP L1 E
4.1.3	✓✓A Stairs / *trappe*	2A stairs (2)	MP L2 E
4.1.4	✓✓A ✓A Multi-media room 1 / *Multi-mediakamer 1*	2A correct room 1A correct number (3)	MP L3 M
4.1.5	Area/ *Opp* A = length × width /*lengte* × *breedte* = 11 m × 3,5 m ✓SF = 38,5 m^2 ✓ MCA Area/ *Opp* B = length × width /*lengte* × *breedte* = 14 m × 3,5 m = 49 m^2 ✓ MA Floor area/*Vloer opp.* = 38,5 m^2 + 49 m^2 = 87,5 m^2 ✓ MCA Area of tile = length × width *Opp van teël* = *lengte* × *breedte* = 600 mm × 600 mm = 360 000 mm^2 ✓ A ∴ $\frac{360\,000}{1000\,000}$ = 0,36 m^2 ✓C Number of tiles/*Getal teëls* = $\frac{87,5}{0,36}$ ✓ MCA ≈ 243,056 tiles✓ CA Number of boxes/ *Getal bokse* = $\frac{244}{5}$ = 48,8 = 49 ✓ CA INVALID/ *ONGELDIG.* ✓ O **OR/*OF*** ✓ SF ✓ MA ✓ A Floor Area/*vloeropp* = 11m ×7 m + 3,5 m × 3 m = 77 m^2 + 10,5 m^2 = 87,5 m^2 ✓ CA	1SF substitution 1MCA simplification 1MA simplification 1MCA simplification total area 1A area tile 1C conversion 1MCA dividing 1CA number of tiles 1CA number of boxes 1O opinion **OR/*OF*** 1SF substitution 1MA adding areas 1A 3 1CA area	M L4 D

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	Tiles /*Teëls* = $\frac{600\text{ mm}}{1000}$ = 0,6 m ✓C Area of a tile / *Opp van teël* = 0,6 m × 0,6 m = 0,36 m² ✓MCA Number of tiles/*Getal teëls* = $\frac{87,5}{0,36}$ ✓MCA ≈ 243,056 tiles ✓CA Number of boxes/ *Getal bokse* = $\frac{244}{5}$ = 48,8 = 49 ✓CA INVALID/ *ONGELDIG.* ✓O	1C conversion 1MCA area of tile 1MCA dividing areas 1CA number of tiles 1CA number of boxes 1O conclusion	
	OR/*OF*	**OR/*OF***	
	✓SF ✓A Floor Area/ *Vloer opp* = 11m ×7 m + 3,5 m × 3 m = 77 m² + 10,5 m² ✓MA = 87,5 m² ✓CA	1A 3 1SF substitution 1MA adding areas 1CA area	
	Tiles / *Teëls* = $\frac{600\text{ mm}}{1000}$ = 0,6 m ✓C Area of a tile / *Opp van 'n teël* = 0,6 m × 0,6 m = 0,36 m² ✓MCA Number of tiles / *Getal teëls* = $\frac{87,5}{0,36}$ ✓MCA ✓CA ≈ 243,056 tiles	1C conversion 1MCA area of tile 1MCA dividing areas 1CA number of tiles	
	tiles in 40 boxes / *teels in 40 bokse* = 40 × 5 = 200 40 boxes is not enough or 200 < 244 ✓CA *40 bokse is nie genoeg nie of 200 < 244* INVALID./ *ONGELDIG* ✓O	1CA less than 1O conclusion	
	OR/*OF*	**OR/*OF***	
	✓SF ✓A Floor Area/*vloeropp* = 14m ×7 m – 3,5 m × 3 m = 98 m² – 10,5 m² ✓MA = 87,5 m² ✓CA	1A 3 1SF substitution 1MA subtracting areas 1CA area	
	Tiles /*Teëls* = $\frac{600\text{ mm}}{1\,000}$ = 0,6 m ✓C Area of a tile / *Opp van teël* = 0,6 m × 0,6 m = 0,36 m² ✓MCA Number of tiles/*Getal teëls* = $\frac{87,5}{0,36}$ ✓MCA ≈ 243,056 tiles ✓CA Number of boxes/ *Getal bokse* = $\frac{244}{5}$ = 48,8 = 49 ✓CA INVALID/ *ONGELDIG.* ✓O	1C conversion 1MCA area of tile 1MCA dividing areas 1CA number of tiles 1CA number of boxes 1O conclusion	

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UMALUSI EXT. MODERATOR E.D. CRONJE

UMALUSI EXT. MODERATOR R. I. SINGH

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	OR/*OF*	**OR/*OF***	
	Area A = length × width/ *lengte* × *breedte* = 11 m × 3,5 m ✓SF = 38,5 m^2 ✓ MCA	1SF substitution 1MCA simplification	
	Area B = length × width/ *lengte* × *breedte* = 14 m × 3,5 m = 49 m^2 ✓ MCA	1MCA simplification	
	Floor area/*Vloer opp.* = 38,5 m^2 + 49 m^2 = 87,5 m^2 ✓ MCA	1MCA simplification total area	
	Area of tile = length × width / *Opp van teël*= $l \times b$ = 600 mm × 600 mm = 360 000 mm^2 ✓ A	1A area tile	
	$\therefore \frac{360\,000}{1000\,000} = 0{,}36$ m^2 ✓C	1C conversion	
	Number of tiles/*Getal teëls* = $\frac{87{,}5}{0{,}36}$ ✓ MCA ≈ 243,056 tiles ✓ CA	1MCA dividing 1CA number of tiles	
	Number of boxes/ *Getal bokse* = $\frac{244}{5}$ = 48,8 = 49 ✓ CA	1CA number of boxes	
	INVALID/ *ONGELDIG.* ✓ O	1O opinion	
	OR/*OF*	**OR/*OF***	
	Area of tile / *Opp van teël* = 600 mm × 600 mm = 360 000 mm^2 ✓A	1A area tile	
	L = 14 m × 1 000 = 14 000 mm ✓C	1C conversion	
	B = 7 m × 1 000 = 7 000 mm		
	$\therefore Area/Opp = 14\,000\,mm \times 7\,000\,mm$ ✓SF = 98 000 000 mm^2 ✓ MCA	1SF substitution 1MCA simplification	
	$\therefore Area/Opp = 3\,500\,mm \times 3\,000\,mm$ = 10 500 000 mm^2 ✓ MCA	1MCA simplification	
	Total area/ *Totale opp* = 98 000 000 mm^2 – 10 500 000 mm^2 = 87 500 000 mm^2 ✓MCA	1MCA simplification total area	

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UMALUSI
EXT. MODERATOR
E.D. CRONJE

UMALUSI
EXT. MODERATOR
R. I. SINGH

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	Number of tiles/*Aantal teëls* $= \frac{87\,500\,000\ mm^2}{360\,000\ mm^2}$ ✓MCA = 243,0555556 tiles ✓CA	1MCA dividing 1CA number of tiles	
	Number of boxes/*Getal bokse* $= \frac{243,0555556}{5}$		
	= 48,61 ≈ 49 ✓CA	1CA number of boxes	
	∴ INVALID/*ONGELDIG* ✓O	1O opinion	
	OR/*OF*	**OR/*OF***	
	✓SF ✓A Area (Lab) = $(7 \times 14 - 3 \times 3.5)\ m^2$ $= (98 - 10,5)\ m^2$ ✓MA $= 87,5\ m^2$ ✓MCA	1A 3 1SF substitution 1MA subtracting 1MCA simplification total area	
	Tile side / *Teël sy* = 600 ÷ 1 000 = 0,6 m ✓C	1C conversion	
	Area covered by a box of tiles *Oppervlakte bedek deur 'n boks teëls* = (0,6 × 0,6) × 5 ✓MCA = 1,8 m² ✓CA	1MCA area of 1 tile 1CA area box of tiles	
	Number of boxes / *Getal bokse* $= \frac{87,5}{1,8}$ ✓MCA = 48,6 ≈ 49 ✓CA	1MCA dividing 1CA number of boxes of tiles	
	INVALID / *ONGELDIG* ✓O	1O opinion	
	OR/OF	**OR/*OF***	
	Calculating 3 areas/*Berekening 3 opp.* A1 = 3,5 ×11 ✓SF $= 38,5m^2$ A2 = 3 × 3,5 ✓A $=10.5m^2$ A3 = 3,5 × 11 $= 38.5m^2$	1SF substitution 1A 3	
	TOTAL $=38,5m^2+10,5m^2+38,5m^2$ ✓MA $=8\ 7,5m^2$ ✓MCA	1MA adding 1MCA simplification total area	
	Number of tiles/*Getal teëls* = $\frac{87,5}{0,36}$ ✓MCA ≈ 243,056 tiles ✓CA	1MCA dividing 1CA number of tiles	
	Number of boxes/ *Getal bokse* = $\frac{244}{5}$ = 48,8 = 49 ✓CA	1CA number of boxes	
	INVALID/ *ONGELDIG* ✓O	1O opinion	
		(10)	

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UMALUSI EXT. MODERATOR E.D. CRONJE

UMALUSI EXT. MODERATOR R. I. SINGH

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
4.2.1*	4 ✓✓ A	2A number of countries (2)	MP L1 E
4.2.2	Harare ✓✓ A	2A correct town (2)	MP L1 E
4.2.3* (a)	✓ SF ✓ A 97 km/h = 179 km ÷ tyd Time =distance ÷ speed *Tyd = afstand ÷ spoed* $= \frac{179}{97}$ ✓ MCA = 1,845 hours ✓ CA Time duration / *tydsduur* = 1,845 hours./*uur* = 1 hour/*uur* + 0,845 × 60 min = 1 hour/*uur* 51 min Arrival time / *Aankomstyd*: = 09:55 + 1 h 51 min = 11: 46 ✓ CA	1A 179 1SF substitution 97 1MCA change formula 1CA time in hours 1CA answer (5)	M L3 D
4.2.3 (b)	✓MA Distance/*Afstand* = (713 – 263) + 2(18) = 450 + 36 ✓MA = 486 km ✓ CA **OR/*OF*** Distance /*Afstand* ✓ MA ✓ MA = (713 – 552) + 18 + 18 + (552 – 263) = 161 + 18 + 18 +289 = 486 km ✓ CA	1MA subtracting correct values 1MA getting 36 1CA total distance **OR/*OF*** 1MA subtracting correct values 1MA adding distances 1CA answer (3)	M L2 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	OR/*OF*	**OR/*OF***	
	✓MA Distance/*Afstand* = (455 – 5) + 2(18)	1MA subtracting correct values	
	= 450 + 36 ✓MA	1MA getting 36	
	= 486 km ✓ CA	1CA total distance	
	OR/*OF*	**OR/*OF***	
	Distance /*Afstand* ✓ MA ✓ MA = (166 – 5) + 18 + 18 + (455 – 166)	1MA subtracting correct values 1MA adding values	
	= 161 + 18 + 18 +289 = 486 km ✓ CA	1CA answer	
	OR/*OF*	**OR/*OF***	
	Distance/*Afstand* ✓MA ✓MA = 179 + 18 + (552 – 263) km = 486 km ✓CA	1MA subtracting correct values 1MA adding values 1CA answer (3)	
		[33]	

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QUESTION/*VRAAG* 5 [29 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
5.1.1*	8 ✓✓A	2A correct number (2)	MP L1 E
5.1.2	Front entrance portal /*Voorste ingangsportaal* ✓MA ✓RT ✓RT $= 58 - (11 \times 4 + 2 \times 4)$ ✓A = 6 feet/ *voet* ✓CA	1MA subtracting from 58 1RT room dimensions 1RT wall thickness 1A multiplying with 4 1CA simplification (5)	MP L3 M
5.1.3	There are no walls separating the kitchen, dining room and living room. ✓✓O *Daar is geen mure wat die kombuis, eetkamer en woonvertrek skei nie*	2O reason (2)	MP L4 E
5.1.4*	Toilet **OR** bath **OR** basin or sink ✓✓A *Toilet OF bad OF wasbak*	2A correct feature (2)	MP L1 E
5.1.5	✓O ✓O 3rd floor and B that it is the second apartment *3de vloer en B is die tweede woonstel* **OR/*OF*** ✓O Block B, Number 3 ✓O *Blok B, nommer 3* **OR/*OF*** ✓O 3rd Floor, unit on the left/right ✓O *3de vloer, die eenheid links/ regs* **OR/*OF*** ✓O 3rd Floor, B-wing ✓O *3de vloer, B -vleuel*	1O numbering of the floors 1O numbering of the apartments (2)	MP L4 M
5.1.6 (a)	17,6784 m = 58 feet/*voet* Conversion factor/ *Herleidings faktor:* $1\text{ m} = \frac{58}{17,6784}$ ✓RT $= 3,28083989\ldots$ ✓MA $\approx 3,281$ feet ✓R	1RT 58 1MA simplification 1R rounded answer (3)	M L2 M
5.1.6 (b)	Width / *Breedte* $= \frac{40}{3,281}$ ✓RT ✓MCA = 12,191405 m ✓CA	**CA from 5.1.6 (a)** 1RT correct width 1MCA dividing 1CA simplification	M L2 M

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EXT. MODERATOR
E.D. CRONJE

UMALUSI
EXT. MODERATOR
R. I. SINGH

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	OR/*OF* 58 feet/*voet* = 17,6784 m 40 feet/*voet* = *n* ✓RT $n = \frac{40}{58} \times 17{,}6784$ ✓MA = 12,191405 m ✓CA	**OR/*OF*** 1RT correct width 1MA working with ratio 1CA simplification **NPR** (3)	
5.2.1	Area /*Oppervlakte* = length × width / *lengte* × *breedte* = 0,614 m × 0,474 m ✓SF = 0,291036 m^2 = 0,3 m^2 ✓R	1SF substitution 1R simplification **NPU** (2)	M L2 E
5.2.2*	Area for 6 panels /*Opp van 6 panele* = 0,3 m^2 × 6 = 1,8 m^2 ✓MCA Cost for 6 panels /*Koste van 6 panele* = 1,8 m^2 × R490/m^2 = R882 ✓MCA Mass of the 6 panels / *Massa van 6 panele* = 1,8 m^2 × 15 kg/m^2 = 27 kg ✓MCA Delivery mass / *Aflewerings massa*= 20 kg + 7 kg Cost of delivery / *Afleweringskoste* ✓MA = R820 + R53,50 × 7 kg ✓MCA = R1 194,50 ✓CA Total cost / *Totale koste* = R882,00 + R1 194,50 = R2 076,50 ✓CA INVALID/ *ONGELDIG* ✓O **OR/*OF***	**CA from Q 5.2.1** 1MCA simplification 1MCA simplification cost 1MCA simplification: mass 1MA cost of 1st 20kg 1MCA add and multiply 1CA simplification 1CA simplification 1O verification **OR/*OF***	M L4 D

Please turn over/*Blaai om asseblief*

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Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
	Using unrounded area Area for 6 panels /*Opp van 6 panele* $= 0{,}291036\ m^2 \times 6$ $= 1{,}746216\ m^2$ ✓CA	1CA simplification	
	Cost for 6 panels /*Koste van 6 panele* $= 1{,}746216\ m^2 \times R490/m^2 = R855{,}65$ ✓CA	1CA simplification cost	
	Mass of the 6 panels / *Massa van 6 panele* $= 1{,}746216\ m^2 \times 15\ kg/m^2 = 26{,}19324\ kg$ ✓CA	1CA simplification: mass	
	Delivery mass / *Aflewerings massa*= 20 kg + 7 kg Cost of delivery / *Afleweringskoste* ✓MA = R820 + R53,50 × 7 kg ✓MCA	1MA cost for 1st 20 kg 1MCA add and multiply	
	= R1 194,50 ✓CA	1CA simplification	
	Total cost / *Totale koste* = R855,65 + R1 194,50 = R2 050,15 ✓CA	1CA simplification	
	INVALID/ *ONGELDIG* ✓O	1O verification (8)	
		[29]	
		TOTAL/*TOTAAL*: 150	

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UMALUSI
EXT. MODERATOR
R. I. SINGH

NOTE/*LET WEL*:

1.1	1.1.1 Circumference	E	The boundary that surrounds the circular shape.	Full marks for written explanations
	1.1.2 Probability	G	The likelihood that something may happen.	
	1.1.3 One hour	F	A time measurement equivalent to three thousand six hundred seconds.	
	1.1.4 Temperature	B	The measure of hotness or coldness.	
1.2.3	B			2 out of 2
1.3.1	Accept round (for circle)			2 out of 2
1.3.3	A motorist can only travel up to 120 km/h on the road. *'n Motoris mag net tot 120km/h ry op die pad,* 120 km/h is the speed limit./ Do not exceed 120 km/h on this road *120km/h is die spoedbeperking/ Jy mag nie 120km/h oorskry op die pad nie*			2 out of 2
1.3.4	For candidates writing 534 – 144 = 390			1 out of 2
2.1.3	Listing all seven correct: 1, 5, 8, 9, 10, 11, 12 Vehicle entrance, cattle vehicle, etc.			1 out of 2
2.1.4	Accept Certain /*Beslis*			2 out of 2
2.2	C E D B A			5A correct order (5)
2.3	Do not drive off the road/ *Moenie van die pad af gaan nie.*			2 out of 2
3.1.4	Using 124 m as radius, but correct calculation 48 311,392 m^2 and conclusion			2 out of 4
3.1.6	The following words can be used: Water, coal, sun, inverters			2 out of 2
3.2.2	12			3 out of 3
3.2.2	15			2 out of 3

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3.3	Using this formula correctly – no part marks $°F = (°C \times \frac{9}{5}) + 32^0$ $= (70^0 \times \frac{9}{5}) + 32^0$ $= 158$	3 out of 3
4.2.1	Zambia, Zimbabwe, South Africa, Botswana	1 out of 2
4.2.3 (a)	Accept 11:45	5 out of 5
5.1.1	6 or 2	1 out of 2
5.1.4	Accept door	2 out of 2
5.2.2	Area for 6 panels/*Oppervlakte van 6 panele* $= 0,3\ m^2 \times 6$ $= 1,746216\ m^2$ $= 2\ m^2$ Cost for 6 panels/*Koste van 6 panele* $= 2\ m^2 \times R490/m^2 = R980,00$ Mass of the 6 panels/*Massa van die 6 panele* $= 2\ m^2 \times 15\ kg/m^2 = 30\ kg$ Delivery mass = 20 kg + 10 kg Cost of delivery/*Afleweringskoste* = R820 + (R53,50 × 10) = R1 355,00 Total cost/*Totale koste* = R980,00 + R1 355 = R2 335,00 INVALID/*ONGELDIG*	7 out of 8

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