



KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

CURRICULUM GRADE 10 – 12

DIRECTORATE

WINTER CLASSES

TEACHER SUPPORT DOCUMENT

GRADE 12

MATHEMATICAL LITERACY P2

2025

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT	Reading from a table/graph/diagram
SF	Correct substitution in a formula
O	Opinion/Explanation/Reasoning
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding Off/Reason
NPR	No penalty for correct rounding minimum two decimal places
AO	Answer only
MCA	Method with consistent accuracy
RCA	Rounding with consistent accuracy

MARKING GUIDELINES

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 (kansleer) en nie oordoen nie, merk die doodgetrekte (gekanseleerde) poging.
- Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, maar dit hou by die tweede berekeningsfout op.
- Wanneer 'n kandidaat aflees van 'n grafiek, tabel, uitlegplan, en kaart en ekstra antwoorde gee, penaliseer vir elke ekstra verkeerde item.

QUESTION 1'S

KEY TO TOPIC SYMBOL:

F = Finance; M = Measurement; MP = Maps, Plans and Other representations; P = Probability

QUESTION 1 [28 MARKS]

ANSWER ONLY FULL MARKS

Ques.	Solution	Explanation	Level
1.1.1	Volume of heavy whipping cream = $\frac{125}{1\,000}$ ✓M = 0,125 litres ✓A	1M divide by 1000 1A answer (2)	M L1
1.1.2	Grams of cocoa powder needed for 12 people = $\frac{50}{4} \times 12$ ✓MA = 150 g ✓A OR Grams of cocoa powder needed for 12 people = $\frac{12}{4} \times 50$ ✓MA = 150 g ✓A	1MA divide by 4 and multiply by 12 1A answer OR 1MA divide by 4 and multiply by 50 1A answer (2)	M L1
1.1.3	Total time = (15 min + 6 min) = 21 min × 2 ✓MA = 42 minutes ✓A	1MA adding time and multiply by 2 1A answer (2)	M L1
1.1.4	Time = 12:05 = 0:21 (prep. and cooking) ✓M = 1:00 (chilling) = 10:44 ✓A	1M subtracting both times 1A correct time (2)	M L1
1.2.1	A OR Word Scale ✓A AND C OR Ratio Scale ✓A	1A first scale 1A second scale (2)	MP L1
1.2.2	Winburg ✓✓A	2A correct town (2)	MP L1
1.2.3	4 national roads ✓✓RT	2RT number of national roads (2)	MP L1
1.2.4	Edenburg ✓✓RT	2RT correct town (2)	MP L1
1.3.1	Radius = $132 \div 2$ ✓M = 66 cm ✓A	1M divide by 2 1A correct radius (2)	M L1

1.3.2	Total number of tanks = $920 \times 2 \checkmark$ MA = 1 840 $\checkmark$ A	1MA multiply correct values 1A number of tanks (2)	M L1
1.3.3	B $\checkmark \checkmark$ A OR cubic metres $\checkmark \checkmark$ A	2A correct unit (2)	M L1
1.3.4	The diameter is the distance from one side of the circle to the other side of the circle, through the centre of the circle. $\checkmark \checkmark$ A	2A definition (2)	M L1
1.4.1	Number of days = 5 $\checkmark \checkmark$ A (Accept 4 days = 1 Mark)	2A correct number of days (2)	M L1
1.4.2	Year born = $2024 - 57 \checkmark$ M = 1967 $\checkmark$ A	1M subtracting 57 from 2024 1A correct year (2) [28]	M L1

QUESTION 1-GP		ANSWER ONLY FULL MARKS		(30 marks)	
Q	Answer	Explanation	Topic Level	Mark	
1.1	1.1.1 R60 $\checkmark \checkmark$ RG	2RG reading from the map	MP1	2	
	1.1.2 West OR Westerly OR W $\checkmark \checkmark$ RG	2RG reading from the map Accept SW	MP1	2	
	1.1.3 Checkers Robertson $\checkmark$ RG Superspar Robertson $\checkmark$ RG	2RG reading from the map	MP1	2	
	1.1.4 Robertson High School $\checkmark \checkmark$ RG	2RG reading from the map	MP1	2	
	1.1.5 Three minutes past/after eleven $\checkmark \checkmark$ A	2A correct full answer	M1	2	
	1.1.6 Street map /Road map $\checkmark \checkmark$ RG	2RG reading from the map	MP1	2	
1.2	1.2.1 4 $\checkmark \checkmark$ RD OR four	2RD reading from the diagram	MP1	2	
	1.2.2 2 OR Two $\checkmark \checkmark$ RD	2RD reading from the diagram	MP1	2	

1.2.3	Doors (Including sliding doors) : Windows 10 : 10 ✓ A 1 : 1 ✓ A	1A ratio in the correct order 1A simplifying Accept Doors (excluding sliding doors) : Windows 8 : 10 4 : 5	MP1	2
1.2.4	Perimeter is the total length/distance around Mr Soetmelk's house/floorplan. ✓✓ A	2A explanation according to context	M1	2
1.2.5	B ✓✓ A	2A correct option Accept m²	M1	2
1.3.1	240 g ✓✓ A	2A answer	M1	2
1.3.2	55 ÷ 60 ✓ MA = 0,92 hours ✓ A	1MA dividing by 60 1A simplification NPR	M1	2

1.3.3	Analogue ✓✓ A	2A correct type	M1	2
1.3.4	16:30 ✓✓ A OR 04:30	2A correct time	M1	2
				[30]

QUESTION 1 KZN- [30 MARKS]ANSWER ONLY FULL MARKS

Ques t.	Solution	Explanation	T & L
1.1.1	✓A ✓A Analogue and digital clocks	2A Correct answer (2)	M L1
1.1.2	✓A ✓A AM and PM time notation/format	2A Correct answer (2)	M L1 E
1.1.3	Time = 22:11 ✓✓RT	2RT correct format (2) Accept: 22:12	M L1 E
1.1.4	Speed = 75mi/h✓✓RT	2RT correct answer (2) Accept: 75	M L1 E
1.1.5	Temperature = 80° F✓✓RT	2RT correct answer (2)	M L1 E
1.2.1	✓MA Total = (3 × 4) + 18 +18✓MA = 48✓CA	1MA Multiplying by 3 1MA adding correct values. 1CA answer (3)	MP L1 E
1.2.2	Part D ✓✓RT	2RT correct answer (2)	MP L1 E
1.2.3	Step 5✓✓RT	2RT correct answer (2)	
1.2.4	Step 1 Attach part B to A ✓RT Step 2 Attach part D to A ✓RT Step 3 Place part C onto B and D✓RT OR Step 1 Attach part B to C ✓RT Step 2 Attach part D to C ✓RT Step 3 Place part A onto B and D✓RT	3RT correct answer (3)	MP L1 E
1.3.1	East✓✓RT	2RT correct answer (2)	M L1 E
1.3.2	Kitchen/Dining room ✓✓RT	2RT correct answer (2)	M L1 E

bathroom or utility room.

OR

om is from the bathroom.

Stannmorephysics.com

OR

QUESTION/VRAAG 1- MP		MARKS/PUNTE]	ANSWER ONLY-FULL	MARKS/SLEGS
[30]				
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L	
1.1.1	Number / Ratio scale ✓✓A <i>Syferskaal / Numeriese skaal/Verhoudingskaal</i>	2A correct answer (2)	MP L1	
1.1.2	1 unit on the drawing represents three hundred thousand units on the actual ground. ✓✓A <i>I eenheid op die skaal verteenwoordig 300 000 eenhede in die werklikheid</i>	2A explanation (2)	MP L1	
1.2.1	D ✓✓A	2A correct answer (2)	M L1	
1.2.2	G ✓✓A	2A correct answer (2)	M L1	
1.2.3	A ✓✓A	2A correct answer (2)	M L1	
1.2.4	C ✓✓A	2A correct answer (2)	MP L1	

1.2.5	B ✓✓A	2A correct answer (2)	M L1
1.3.1	Table top/Tafelblad ✓✓RT	2RT correct speed (2)	MP L1
1.3.2	4 pieces/Stukke ✓✓RT	2RT correct unit (2)	MP L1
1.3.3	Padstow Circular Dining Table ✓✓RT Padstow sirkelvormige eetkamertafel	2RT correct distance (2)	MP L1
1.3.4	128 mm ✓✓A 	2A correct measurement Accept: 126 mm – 130 mm (2)	M L1
1.3.5	mm ² ✓✓A 	2A correct unit Accept: cm², m² (2)	M L1
1.4.1	✓C 410 ÷ 1000 = 0,41 kg ✓S	1 C dividing by 1000 1S simplification (2)	M L1

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.4.2	3 packs/pakke ✓✓A	2A correct types of chairs (2)	M L1
1.4.3	✓MA $410 \times 12 = 4\,920$ grams ✓S	1MA multiply by 12 1S simplification (2)	M L1



QUESTION/VRAAG 1 [30 MARKS/PUNTE] Answer only AO – full marks -NW			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.1	R533✓✓RT	2RT reading from the map/lees vanaf die kaart (2)	M&P TL1 E
1.1.2	B3✓✓A	1A B 1A 3 (2)	M&P TL 1 E
1.1.3	Bar scale/Staafskaal✓✓A OR/OF Graphic scale/line scale/Grafiese skaal/lynskaal	2A correct answer/korrekte antwoord (2)	M&P TL 1 E
1.1.4	Store museum/winkel museum✓✓RT	2RT reading from a map/lees vanaf die kaart (2)	M&P TL 1 E

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.1.5	$\frac{76\,495}{1\,220\,813} \times 100\% \checkmark \text{MA}$ $= 6,265906\ldots\% \checkmark \text{A}$ $= 6,3\% \checkmark \text{R}$	1MA calculating/ <i>bereken %</i> 1A correct answer/ <i>korrekte antw</i> 1R correct rounding/ <i>korrekte afronding</i> (3)	M&P TL1 M
1.2.1	$D \checkmark \checkmark \text{A OR } P = \text{side} + \text{side} + \text{side/sy} + \text{sy} + \text{sy} \checkmark \checkmark$	2A correct formula/ <i>korrekte formule</i> (2)	M TL 1 E
1.2.2	$500 \text{ mm} \div 1000 \checkmark \text{C}$ $= 0,5 \text{ m} \checkmark \text{A}$	1C convert to/ <i>skakel om na m</i> 1A answer/ <i>antwoord</i> (2)	M TL 1 E
1.2.3	$25 \text{ cm} \times 2 \checkmark \text{MA}$ $= 50 \text{ cm} \checkmark \text{A}$	1MA multiply by/ <i>vermenigvuldig met 2</i> 1A answer/ <i>antwoord</i> (2)	M TL 1 E
1.3.1	$\text{Mass} = 1\,200 \text{ g} \div 3 \checkmark \text{MA}$ $= 400 \text{ g} \checkmark \text{A}$	1MA dividing/ <i>deling</i> 1A answer/ <i>antwoord</i> (2)	M TL 1 E
1.3.2	$12,5 \text{ kg flour/meel} \checkmark \checkmark \text{RT}$ OR/OF Mealie meal/ <i>mieliemeel</i> OR/OF Macaroni	2RT answer/ <i>antwoord</i> (Any one of the three option is correct/ <i>enige een van die drie opsies korrek</i>) (2)	M TL 1 M
1.3.3	$\text{Mass/gewig} = 9\,000 \text{ g} \div 4 \checkmark \text{MA}$ $= 2\,250 \text{ g} \div 1\,000 \checkmark \text{A}$ $= 2,25 \text{ kg} \checkmark \text{C}$ OR $9\,000 \text{ g} \div 1\,000 \checkmark \text{C}$ $= 9 \text{ kg} \div 4 \checkmark$ $= 2,25 \text{ kg} \checkmark$	1MA dividing by/ <i>deel deur 4</i> 1A answer/ <i>antwoord</i> 1C conversion (3)	M TL1 M
1.4.1	$E \checkmark \checkmark \text{A}$	2A correct definition / <i>regte definisie</i> (2)	M&P TL 1 E

1.4.2	A✓✓A	2A Correct definition/ <i>regte definisie</i> (2)	M TL 1 E
1.4.3	B✓✓	2A Correct definition/ <i>regte definisie</i> (2)	P TL 1 E
		[30]	



QUESTION 2'S

QUESTION 2 EC

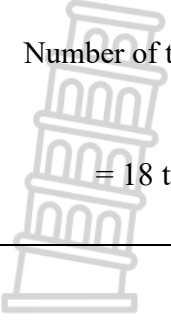
Ques.	Solution	Explanation	Level
2.1.1	National Roads ✓✓A	2A correct road (2)	MP L1
2.1.2	Northeast OR NE ✓✓A	2A correct direction (2)	MP L1
2.1.3	Eastern Cape	2A correct province (2)	MP L2
2.1.4	$\text{Speed} = \frac{\text{Distance}}{\text{Time}} \quad \checkmark\checkmark\text{A}$ $120 \text{ km/h} = \frac{614,6 \text{ km}}{\text{Time}} \quad \checkmark\text{SF}$ $\text{Time} = \frac{614,6 \text{ km}}{120 \text{ km/h}} \quad \checkmark\text{MA}$ $= 5,121666667 \text{ hours}$ $0,12166... \times 60 = 7,3 \text{ minutes} \quad \checkmark\text{C}$ Time taken to reach Vryheid = 5 hours and 7,3 minutes ✓CA (Accept 5 hours and 7 minutes)	1SF substitution 1MA change subject and answer 1C hours to minutes 1CA total time (4)	MP L3
2.2.1	- From the Free State, drive on the N3 till she reaches Pietermaritzburg. ✓O - Pass Pietermaritzburg and turn left onto the N2. Continue driving on the N2 till she passes Richard's Bay, turn left and pass Empangeni. ✓O - Continue on the road from Empangeni until she reaches Eshowe. ✓O (Accept any other relevant explanation.)	1O N3 1O left on N2 and passing Richard's Bay and Empangeni 1O continue to Eshowe from Empangeni (3)	MP L4
2.2.2	Number of litres of petrol = $\frac{5,9}{100} \times 614,9 \text{ l} \quad \checkmark\text{MA}$ $= 36,2614 \times 2 \quad \checkmark\text{M}$ $= 72,5228 \quad \checkmark\text{CA}$ $\approx 72,523 \text{ litres}$ (Accept 72,5 OR 72,52)	1MA dividing correct values and multiply by 614,9 1M multiply by 2 1CA number of litres NPR (3)	
2.2.3	Petrol cost = $72,523 \text{ litres} \times \text{R}24,45 \quad \checkmark\text{MCA}$ $= \text{R}1\,773,18735$ $\approx \text{R}1\,773,19 \quad \checkmark\text{CA}$	CA from 2.2.2 1MCA multiply by R24,45 1CA answer (2)	F L1

2.3.1	One unit on the map represents 350 units in reality. ✓✓A	2A explanation	MP L1
OR			
	One unit on the map equals 350 units on the floor. ✓✓A	(2)	
2.3.2	Elevator ✓✓A OR Stairs ✓✓A	2A one correct feature	MP L1
2.3.3	Hata Street entrance ✓✓A	2A correct entrance	MP L1
2.3.4	Number of restrooms = 4 ✓✓A	2A correct number of restrooms	MP L2
2.3.5	Impossible OR None OR 0 OR 0% ✓✓A	2A answer	P L2
2.3.6	34 mm ✓✓A (Accept 33 – 35 mm)	2A correct length in mm	MP L1
2.3.7	Actual length = 34×350 = 11 900 mm ✓MCA $\therefore = \frac{11\,900}{1\,000}$ ✓C = 11,9 m ✓MCA	CA from 2.3.6 1MCA multiply with correct scale and answer 1C divide by 1000 1MCA answer	MP L2

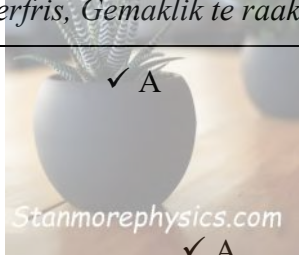
QUESTION 2-GP				(27 marks)	
Q	Answer		Explanation	Topic Level	Mark
2.1	2.1.1	Kuruman ✓✓ RD	2RD correct town	MP1	2
	2.1.2	66 mm ✓✓ A	2A measurement Accept 64 mm – 66 mm	MP1	2
	2.1.3	Bar scale 80 km = 26 mm ✓ A Actual distance = $\frac{66\text{ mm}}{26\text{ mm}} \times 80\text{ km}$ ✓ M = 203,08 km ✓ CA	CA from 2.1.2 1A bar measurements 1M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm – 27 mm NPR	MP3	4

2.1.4	Rural areas = 100% - 3,6% = 96,4% ✓ MA $\frac{96,4}{100} \times 4\,100\,000$ ✓ S = 3 952 400 people ✓ A OR $\frac{96,4}{100} \times 4,1$ million ✓✓ S A = 3,9524 ✓ million people	1MA subtracting % 1S Simplification 1A number of people 2S Simplification 1A number of people	MP3	3	
2.1.5	$(1\text{ km})^2 = (0,62137119\text{ miles})^2$ $1\text{ km}^2 = 0,38610216\text{ miles}^2$ ✓ C Area of North-West in km^2 = 40 495 miles^2 ✓ MCA $0,38610216\text{ miles}^2$ ✓ CA = 104 881,5681 = 104 882 km^2 ✓ CA	1C to squares 1MCA dividing by conversation factor 1CA rounded area	M3	3	
2.1.6	Population of North-West = 4 100 000 Population density = $\frac{4\,100\,000\text{ people}}{104\,882\text{ km}^2}$ □ SF = 39,091 people/km^2 □ CA ≈ 39 people/km^2 □ R	CA from 2.1.5 1SF substituting values 1CA population density 1 Rounding	MP2	3	
2.2	2.2.1	Number of trips = $30 \div 6$ ✓M = 5 in the row ✓S Every 7 minutes = 5×7 minutes ✓M = 35 minutes ✓S Time to reach the top = 9:43 + 35 minutes ✓MA 10:18 am ✓CA	1M dividing values 1S simplifying 1M multiply 1S time 1MA adding 1CA arrival time	M3	6
	2.2.2	Time = 5 min × 60 = 3 00 sec ✓ C Distance = speed × time ✓ A = 5 m/s x 300 sec ✓ SF = 1 500 meters ✓ CA	1C conversion 1A changing the subject of the formula 1SF substituting values 1CA answer	M2	4
[27]					

QUESTION 2 [30 MARKS]-KZN			
Quest.	Solution	Explanation	T & L
2.1.1	A layout plan shows the top /aerial/birds eye view and the arrangement of the wedding venue ✓✓O	2O correct explanation (2)	MP L1 E
2.1.2	Line/Graphic scale ✓✓A	2A correct answer (2)	MP L1 E
2.1.3	2,5cm ✓✓A 25mm ✓✓A 	2A measuring accurately Accept 2,4 cm to 2,6cm (2)	MP L1 E
2.1.4	2,5 cm on the plan represents 5m in reality ✓✓O OR 25mm on the plan represents 5m in reality ✓✓O	2O correct explanation (2)	MP L1 E
2.1.5	✓ MA Number of people = $(13 \times 10) + 9 + 12$ ✓ MA = 151 ✓ CA	1MA multiplying 13 by 10 1MA adding 9 and 12 1CA answer (3)	MP L2 M
2.2.1	Length in cm = $98,43 \times 2,54$ ✓C = 250,01cm ✓A Length in m = $250,01 \div 100$ ✓MCA = 2,50m ✓CA	1C conversion 1A answer 1MCA dividing by 100 1CA answer (4)	MP L2 M
2.2.2	Along the length = $15 \div 2,50$ ✓ MCA = 6 ✓CA Along the width = $7,5 \div 2,50$ = 3 ✓CA	CA from Q2.2.1 1MCA dividing by 2,50 1CA answer 1CA answer	MP L2 M

	 Number of tables = $6 \times 3 \checkmark$ MCA = 18 tables $\checkmark$ CA	1MCA multiplying 1CA answer (5)	
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2.3.1	 Turn right and head north on R28 Krugersdorp and travel towards Pretoria City $\checkmark$ A Turn right onto N4 Witbank $\checkmark$ A Drive through Diamond Hill Toll Plaza $\checkmark$ A Turn right onto Exit 37 Valtaki Witfontein, Langverwacht farm is on the left. $\checkmark$ A	1A correct direction 1A correct direction 1A correct direction 1A correct direction (4)	MP L2 M
2.3.2	P(Snowing) = 0% $\checkmark \checkmark$ A	2A correct answer (2)	P L2 E
2.3.3	$P(\text{Raining}) = \frac{2 \checkmark A}{3 \checkmark A} \times 100\% \checkmark$ MA = 66,67% $\checkmark$ CA	1A numerator 1A denominator 1MA multiply by 100% 1CA answer Accept $\frac{1}{3} = 33,33\%$ (4)	P L2 E
		[30]	

QUESTION/VRAAG 2 [27 MARKS/PUNTE]-MP			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
2.1.1	NI, N4 ✓✓A	1A correct road 1A correct road (2)	MP L1
2.1.2	SW or South West <i>SW of Suid-Wes</i> ✓✓RT	2RT correct number of points (2)	MP L2
2.1.3	✓✓O Rest , Get food , Refresh , Comfort breaks, etc <i>Rus, Kos kry, Verfris, Gemaklik te raak ens.</i>	2O correct reason (2)	MP L4
2.1.4	2,3 cm: 300 km 2,5 cm: x ✓ MA $2,5 \times 300 = 326,09 \text{ km}$ 2,3 $1,2 \times 300 = 156,52 \text{ km}$ ✓ A 2,3 ✓ MA $326,09 \text{ km} + 156,52 \text{ km} = 482,61 \text{ km}$ $\approx 483 \text{ km}$ ✓ R OR ✓ MA ✓ A $1.2 \text{ cm} + 2,5 \text{ cm} = 3,7 \text{ cm}$ $2,3 \text{ cm} : 300 \text{ km}$ ✓ A 3,7 cm : x ✓ MA $3,7 \times 300 = 482,609 \text{ km}$ ✓ CA 2,3 $\approx 483 \text{ km}$ ✓ R 	1A correct bar scale measurement 1MA multiply and divide with correct values 1A correct distance 1A distance 1MA adding correct values 1R correct rounding 1MA adding map measurements 1A correct map measurement 1A correct bar scale measurement 1MA multiply and divide with correct values 1CA distance 1R correct rounding (6)	MP L3

2.1.5	✓ MA $12\text{h } 50 \text{ minutes} - 7\text{h}00 = 5\text{h } 50 \text{ minutes}$ 5h 50 minutes – 1h 30 minutes = 4h 20 $4\text{h} + (20 \div 60) = 4,3333 \text{ hours}$ ✓ C Speed = $\frac{483}{4,3333} = 111,46 \text{ km/hr}$ ✓ CA NOT VALID/NIE GELDIG NIE ✓ O	Ca from 2.1.4 1MA correct duration 1C conversion of time to hours 1SF substitution to the correct formula 1CA correct speed 1O Opinion (5)	MP L4
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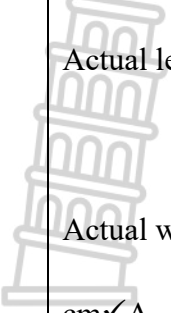
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.1.6	✓MA $483 \times 2 = 966 \text{ km}$ ✓A ✓MA $\frac{966}{100} \times 6,8 = 65,688 \text{ litres}$ ✓CA OR ✓MA $\frac{483}{100} \times 6,8 = 32,844 \text{ litres}$ ✓A Return trip $32,844 \text{ litres} \times 2 = 65,688 \text{ litres}$ ✓CA	Ca from 2.1.4 1MA multiply by 2 1A return distance 1MA divide and multiply with correct values 1CA amount for return trip 1MA divide and multiply with correct values 1A amount for single trip 1MA multiply by 2 1CA amount for return trip (4)	MP L3

2.2.1	✓ M 55 minutes + 2 h 3 minutes + 1 hour = 3 hours 58 minutes ✓ CA ✓ MA 5h50 mins – 3h 58 mins = 1 hr 52 minutes 52 min 1 hr + $\frac{52}{60}$ = 1,87 hours ✓ CA ✓ C VALID/GELDIG ✓ O OR 1,87 hours × 60 = 112,2 minutes ✓ C 112,2 minutes – 60 minutes = 52,2 minutes 112.2 minutes = 1 hour 52 minutes ✓ M 55 minutes + 2 h 3 minutes + 1 hour = 3 hours 58 minutes ✓ A ✓ MA 5h 50 minutes – (3h 58 mins) = 1 h 52 minutes ✓ A VALID ✓ O	1M adding correct values 1CA total duration 1MA subtracting from 5h50 minutes 1C minutes to hours 1CA time in hours 1O Opinion 1C time in hours to minutes 1M adding correct values 1A total duration 1MA subtracting from 5h50 minutes 1A total time 1O Opinion (6)	MP L4
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QUESTION/VRAAG 2 [31 MARKS/PUNTE]-NW			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
2.1.1	No of seats $= 17 + 30 + 27 + 24 + 23 + 20 + 19 + 16 \checkmark$ MA $= 176 \text{ seats} \checkmark$ CA OR No of seats $= 50 + 85 + 41 \checkmark$ $= 176 \checkmark$	1MA adding all values/<i>tel al die getalle bymekaar</i> 1CA answer/<i>antwoord</i> AO (2)	M&P TL1 E
2.1.2	Wheelchair seats/<i>Rolstoelsitplekke</i> $= 8 \checkmark$ A Non wheelchair seats/<i>gewone sitplekke</i> $= 176 - 8 = 168 \checkmark$ CA $8 : 168 \checkmark$ MCA $1 : 21 \checkmark$ CA	CA no of seats from/aantal sitplekke van 2.1.1 1A number of wheelchair seats/<i>aantal rolstoelsitplekke</i> 1CA number of non-wheelchair seats/<i>gewone sitplekke</i> 1MCA correct order/<i>regte volgorde</i> 1CA simplification/<i>vereenvoudig</i> (4)	M&P TL 2 M
2.1.3	North East OR NE $\checkmark \checkmark$ A	2A correct compass direction/<i>regte kompasrigting</i> (2)	M&P TL 2 E
2.1.4	$\checkmark \checkmark$ F14	1 A F 1A 14 (2)	M&P TL 2 E

2.1.5	Mrs Brook will get up from her seat and turn towards the west/left ✓ A/Mev Brooks sal opstaan en wes/links draai She will walk till the passage, turn North/right/sy sal afloop in die paadjie en dan Noord/regs draai ✓ A and walk straight forward to the stage/ loop reguit vorentoe tot by die verhoog ✓ A OR/OF Walk towards the east/right, walk till passage then turn north towards the stage/loop oos in die rigting van die gangetjies draai Noord en loop tot by die verhoog.	1A turn left/east/draai links/oos 1A turn right/north/draai regs/noord 1A passageway to the stage/ gangetjie tot by verhoog (3)	M&P TL 2 E
2.1.6	$62,5\% \times 176 = 110$ ✓ MA $P = \frac{1}{110}$ ✓✓ A OR 0,0091 ✓✓ OR 0,91% ✓✓	CA number of seats from 2.1.1 1MA calculating/ bereken % of/ van 176 1A numerator/teller 1CA Denominator/noemer NPR (3)	P TL2 M
2.2.1	Floor plan is the aerial /top/bird's eye view of a structure/ vloerplan is die tekening van die uitleg van 'n gebou vanuit 'n voël-oog-uitsig/bo-aansig ✓✓ A	2A correct definition/regte definisie (2)	M&P L1 E
2.2.2	13 doors/deure ✓✓ A (1 garage door/motorhuisdeur, 1 sliding door/skuifdeur and/en 11 normal doors/gewone deure)	2A correct number of doors/korrekte aantal deure (2)	M&P TL 2 E
2.2.3	A ✓✓ A OR/OF The porch is on the west elevation/die stoep is op die westelike aansig.	2A correct option/korrekte opsie (2)	M&P TL 1 E

2.2.4	 Actual length/<i>werklike</i> = $40 \text{ mm} \times 200 \checkmark \text{MA}$ $= 8\,000 \text{ mm} \checkmark \text{C}$ $= 800 \text{ cm} \checkmark \text{C}$ Actual width / <i>werklike</i> = $32 \text{ mm} \times 200$ $= 6\,400 \text{ mm} = 640$ $\text{cm} \checkmark \text{A}$ Floor area/<i>vloeroppervlakte</i> = $800 \text{ cm} \times 640$ $\text{cm} \checkmark \text{SF}$ $= 512\,000 \text{ cm}^2 \checkmark \text{CA}$ Minimum area of the window/<i>minimum opp v venster</i> $= 512\,000 \text{ cm}^2 \times 12,5\%$ $= 64\,000 \text{ cm}^2 \checkmark \text{CA}$ Area of the window/<i>opp v venster</i> $= \text{height}/h \times \text{width}/b$ $64\,000 \text{ cm}^2 = 256 \text{ cm} \times \text{width}/b$ $\text{Width}/\text{breedte} = 64\,000 \text{ cm}^2 \div 256 \text{ cm} \checkmark \text{MCA}$ $= 250 \text{ cm} \checkmark \text{CA}$	1MA using scale/<i>gebruik skaal</i> 1C conversion/<i>omskakeling</i> 1A length/<i>lengte</i> 1A width/<i>breedte</i> 1SF substitution/<i>vervang in formule</i> 1CA area of the room/<i>oppervlakte van kamer</i> 1CA area of the window/<i>oppervlakte van venster</i> 1MCA finding the width/<i>bereken die breedte</i> 1CA simplification/<i>vereenvoudig</i> (9)	M&P TL 3 D
		[31]	

QUESTION 3'S



QUESTION 3 [30 MARKS] -EC			
Ques.	Solution	Explanation	Level
3.1.1	Area of rectangular school hall = length $\times$ width $= 18 \text{ m} \times 12 \text{ m} \checkmark \text{SF}$ $= 216 \text{ m}^2 \checkmark \text{A}$ Area of stage = length $\times$ width $= 10 \text{ m} \times 5,5 \text{ m}$ $= 55 \text{ m}^2 \checkmark \text{A}$ Area of floor to be tiled = $216 \text{ m}^2 - 55 \text{ m}^2 \checkmark \text{MCA}$ $= 161 \text{ m}^2 \checkmark \text{CA}$	1SF substitution 1A area 1A area 1MCA subtracting areas 1CA answer (5)	M L3
3.1.2 (a)	Area of tile = $60 \text{ cm} \times 60 \text{ cm} \checkmark \text{M}$ $= 3\,600 \text{ cm}^2$ $= \frac{3\,600}{100 \times 100} \checkmark \text{C}$ $= 0,36 \text{ m}^2 \checkmark \text{CA}$ OR Area of tile = $0,6 \text{ m} \times 0,6 \text{ m} \checkmark \text{M}$ $= 0,36 \text{ m}^2 \checkmark \text{CA}$	1M calculating area 1C conversion 1CA area in m^2 OR 1C conversion 1M calculating area 1CA area in m^2 (3)	M L2
3.1.2 (b)	Number of tiles needed = $\frac{161}{0,36} \checkmark \text{MCA}$ $= 447,22... \times 1,1 \checkmark \text{M}$ $= 491,94 ...$ $\approx 492 \text{ tiles} \checkmark \text{CA}$	CA from 3.1.1 and 3.1.2(a) 1MCA dividing correct values 1M multiply by 10% 1CA number of tiles (3)	M L2
3.1.2 (c)	Cutting OR breakages OR wastage $\checkmark \checkmark \text{O}$	2O reason (2)	M L4
3.1.3	Scale = $60 \text{ mm} : 18 \text{ m} \checkmark \text{M}$ $= 60 : 18\,000 \checkmark \text{C}$ $\checkmark \text{S} \checkmark \text{C}$ $= 1 : 300$ OR Scale = $60 \text{ mm} : 18 \text{ m} \checkmark \text{M}$ $= 0,06 : 18 \checkmark \text{C}$ $= 1 : 300 \checkmark \text{S}$	1M correct ratio 1C converting 18m to mm 1S unit ratio OR 1M correct ratio 1C converting 6 mm to m 1S unit ratio (3)	M L3
3.2.1	Diameter = $8 \text{ cm} \times 2 \checkmark \text{M}$ $= 16 \text{ cm} \times 10$ $= 160 \text{ mm} \checkmark \text{C}$ OR $\checkmark \text{C}$	1M multiplying by 2 1C diameter in mm OR	M L2

	Diameter: $8 \text{ cm} \times 10 = 80 \text{ mm}$ $\checkmark \text{M}$ $\therefore 80 \text{ mm} \times 2 = 160 \text{ mm}$	1C diameter in mm 1M multiplying by 2 (2)	
3.2.2	Dimensions of unshaded part: Length = $28,5 \text{ cm} - 2,5 \text{ cm} - 2,5 \text{ cm} \checkmark \text{M}$ $= 23,5 \text{ cm} \checkmark \text{CA}$ Width = $22 \text{ cm} - 2,5 \text{ cm} - 2,5 \text{ cm}$ $= 17 \text{ cm} \checkmark \text{CA}$	1M subtracting 2,5 twice from length 1CA length 1CA width (3)	M L3
3.2.3	Perimeter = $2 (\text{length} + \text{width})$ $= 2 (23,5 \text{ cm} + 17 \text{ cm}) \checkmark \text{SF}$ $= 81 \text{ cm} \checkmark \text{CA}$	CA from 3.2.2 1SF correct length and width 1CA perimeter (2)	M L1
3.2.4	Area of certificate without border and (circle included) $= \text{length} \times \text{width}$ $= 23,5 \text{ cm} \times 17 \text{ cm} \checkmark \text{SF}$ $= 399,5 \text{ cm}^2 \checkmark \text{MCA}$ Area of circle = $3,142 \times \text{radius}^2$ $= 3,142 \times 8^2 \checkmark \text{SF}$ $= 201,088 \text{ cm}^2 \checkmark \text{CA}$ $\therefore$ Area of unshaded part (excluding border and circle): $= 399,5 \text{ cm}^2 - 201,088 \text{ cm}^2 \checkmark \text{MCA}$ $= 198,412 \text{ cm}^2$ $\approx 198 \text{ cm}^2 \checkmark \text{CA}$ $\therefore$ Her statement is valid $\checkmark \text{O}$	CA from 3.2.2 1SF correct dimensions 1MCA area 1SF substitution 1CA area of circle 1MCA subtracting areas 1CA unshaded area 1O opinion (7)	M L4
		[30]	

QUESTION 3-GP				(32 marks)	
Q	Answer		Explanation	Topic Level	Mark
3.1	3.1.1	FALSE $\checkmark$ A, she lay on the 50 th percentile. $\checkmark$ J	1A correct choice J reasoning	M4	2
	3.1.2	FALSE $\checkmark$ A, just about 50% were heavier than him. $\checkmark$ J	1A correct choice J reasoning	M4	2
	3.1.3	TRUE $\checkmark \checkmark$ A	2O correct answer	M4	2
	3.1.4	TRUE $\checkmark \checkmark$ A OR FALSE $\checkmark$ A, the girl was closer to the 75 th percentile curve while the boy was just above the 50 th percentile curve. $\checkmark$ J	2J reasoning	M4	2

	3.1.5	FALSE ✓ A, the baby boy's mass increased just a little more than 122%. ✓ J	1A correct choice J reasoning	M4	2
3.2	3.2.1	550 mm x 840 mm ✓✓ A	2A correct dimensions	M1	2
	3.2.2	Circumference = 3,142 x 550 mm ✓ SF = 1 728,10 mm ✓ A	1SF substitution 1A answer NPR	M2	2

	3.2.3	<u>100 ℓ OLD GEYSER:</u> Surface area $r = 550 \text{ mm} \div 2$ $= 275 \text{ ✓ M}$ $= (2 \times 3,142 \times 275^2) + (2 \times 3,142 \times 275 \times 840) \text{ ✓ M}$ $= 475\,227,5 + 1\,451\,604$ $= 1\,926\,831,5 \text{ mm}^2 \text{ ✓ CA}$ <u>200 ℓ NEW GEYSER:</u> Surface area $= 2 \times \pi \times r^2 + 2 \times \pi \times r \times \ell$ $= (2 \times 3,142 \times 275^2) + (2 \times 3,142 \times 275 \times 1470) \text{ ✓ M}$ $= 475\,227,5 + 2\,540\,307$ $= 3\,015\,534,5 \text{ mm}^2 \text{ ✓ CA}$ $= \frac{3\,015\,534,5 \text{ mm}^2}{2} \text{ ✓ MCA}$ $= 1\,507\,767,25 \text{ mm}^2 \text{ ✓ CA}$ Therefore, Mr Masenya's claim is not correct ✓ O	1M for radius 1M substitution of values 1CA answer 1M substitution of values 1CA answer 1MCA dividing by 2 1CA correct answer 1O conclusion	M4	8
	3.2.4	First error: the diameter was used instead of dividing by 2 to get the radius. ✓✓ O Second error: the conversion from mm^3 to cm^3 was done incorrectly. Thus, it was divided by 10 instead of 10^3 or 1 000. ✓✓ O OR Did not use 3,142 value of pi in the calculation.	2O first error 2O second error	M4	4

3.2.5	$3,142 \times 275^2 \times 1\,470 \text{ mm} \checkmark \text{ SF}$ $= 349\,292\,212,5 \text{ mm}^3 \div 1\,000 \checkmark \text{ C}$ $= 349\,292,2125 \text{ cm}^3 \div 1\,000 \checkmark \text{ C}$ $= 349,292 \text{ l} \checkmark \text{ CA}$	1SF substituting values 1C converting to cm^3 1C converting to litres 1CA correct answer	M3	4
3.2.6	Yes. $\checkmark$ O because he is getting more than 200 litres. $\checkmark$ J. OR No, because he is getting more than 200 litres which would potentially increase his electricity bill.	1O Yes or No 1J reasoning	M4	2
				[32]

QUESTION 3 [30 MARKS]-KZN

Quest	Solution	Explanation	T & L
3.1.1	$\checkmark \text{ SF} \quad \checkmark \text{ MA}$ Perimeter of the pool cover = $2(26 + 14) + 4 + 4$ $= 88\text{m} \checkmark \text{ CA}$	1SF correct values 1MA adding 8m 1CA answer (3)	M L 2 M
3.1.2	$\checkmark \text{ SF} \quad \checkmark \text{ MA}$ Area of the pool = $(24 \times 12) + (4 \times 8)$ $= 320 \text{ m}^2 \checkmark \text{ CA}$ $\checkmark \text{ MA} \quad \checkmark \text{ MA}$ Area of the pool cover = $(26 \times 14) + (10 \times 4)$ $= 404 \text{ m}^2 \checkmark \text{ CA}$ Times bigger = $404 \div 320 \checkmark \text{ MCA}$ $= 1,26 \checkmark \text{ CA}$	1SF correct values 1MA adding area 1CA answer 2MA adding 2m to each side 1CA answer 1MCA dividing by 320 1CA answer (8)	M L 3 D

3.2.1	✓SF ✓MA Volume of water = $(24 \times 12 \times 2) + (8 \times 4 \times 1)$ ✓SF = 608 m^3 ✓CA	2 SF correct values 1MA adding volumes 1CA answer Accept 608 000 ℓ (4)	M L2 M
3.2.2	Number of litres of water = 608×1000 ✓C = $608\,000$ ✓A Number of teaspoons = $(608\,000 \div 1000) \times 1,5$ ✓MA = 912 ✓CA ✓MA Number of litres = $(912 \times 5) \div 1000$ ✓C = $4,56$ ✓CA OR Number of litres of water = 608×1000 ✓C = $608\,000$ ✓A Number of ml of chlorine = $\frac{608\,000 \times 7,5}{1000}$ ✓MA = $4\,560 \text{ ml}$ ✓CA Number of Litres = $\frac{4560}{1000}$ ✓MA = $4,56$ ✓CA	CA from Q3.2.1 1C Conversion 1A correct Answer 1MA multiplying by 1,5 1CA answer 1MA multiply by 5 1C dividing by 1000 1CA answer (7)	M L3 D
3.3.1	Number of litres of water = $9 \times 3,78541$ ✓C = $34,07$ ✓A	1C Conversion 1A answer (2)	M L2 M
3.3.2	Number of minutes = $608\,000 \div 34,07$ ✓MCA	CA from Q3.3.1 1MCA dividing by 34,07 1CA answer	M L3

	$7\,845,61 \checkmark \text{CA}$ $\text{Number of hours} = 17\,845,61 \div 60 \checkmark \text{C}$ $= 297,43 \checkmark \text{CA}$ $\text{Number of days} = 297,43 \div 24 \checkmark \text{C}$ $= 12,39 \text{ days}$ $= 13 \checkmark \text{R}$	1C dividing by 60 1CA answer 1C dividing by 24 1R rounding (6)	D
			[30]

QUESTION/VRAAG 3 [32 MARKS/PUNTE]-MP			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
3.1.1	$150 \text{ mm} + 150 \text{ mm} + 150 \text{ mm} + 150 \text{ mm} + 180 \text{ mm} \times 12) \checkmark \text{A} \quad \checkmark \text{MA}$ $= 2\,760 \text{ mm} \checkmark \text{S}$ OR $\checkmark \text{A} \quad \checkmark \text{A}$ $(150 \text{ mm} \times 4) + (180 \text{ mm} \times 12)$ $= 2\,760 \text{ mm} \checkmark \text{S}$	1MA adding correct values 1A multiply 180 mm by 12 1S simplification 1MA adding correct values 1A multiply 180 mm by 12 1S simplification (3)	M L2
3.1.2	$\text{Area/Oppervlakte} = 2,76 \text{ m} \times 1,75 \text{ m} \checkmark \text{SF}$ $= 4,83 \text{ m}^2 \checkmark \text{A} \checkmark \text{A}$	1SF substituting to correct formula 1A simplification 1A correct unit (3)	M L2
3.1.3	$\frac{15 \text{ cm}}{100 \text{ cm} / \text{m}} = 0,15 \text{ m} \checkmark \text{C}$ Area of 1 side of rectangular pole <i>Oppv van 1 sy van reghoekige paal</i> $= 0,165 \text{ m} \times 1,75 \text{ m} = 0,2625 \text{ m}^2 \checkmark \text{SF}$ Total area of rectangular pole <i>Totale oppv van reghoekige paal</i> $= 0,2625 \text{ m}^2 \times 4 \checkmark \text{MCA}$	1C conversion to metres 1SF substitute to correct formula 1MCA multiply both area by 4 1CA total area of the rectangular	M L4

	$= 1,05 \text{ m}^2 \checkmark \text{CA}$ Area of triangle / <i>Oppv van driehoek</i> $= \frac{1}{2} \times 0,16 \text{ m} \times 0,11 \text{ m} \checkmark \text{SF}$ $0,0088 \text{ m}^2 \times 4 \checkmark \text{CA}$ $= 0,0352 \text{ m}^2$ Total surface area of one pole <i>Totale BO van een paal</i> $\checkmark \text{MCA}$ $= 1,05 \text{ m}^2 + 0,0352 \text{ m}^2 = 1,0852 \text{ m}^2$ VALID/GELDIG $\checkmark \text{O}$	pole 1SF substitute to correct formula 1CA total area of triangles MCA adding both areas 1CA answer area in m^2 1O conclusion	
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	OR 15 cm $100 \text{ cm} / \text{m} = 0,15 \text{ m} \checkmark \text{C}$ Area of rectangle / <i>Oppv van reghoek</i> $0,15 \text{ m} \times 1,75 \text{ m} \checkmark \text{SF} = 0,2625 \text{ m}^2 \checkmark \text{CA}$ Area of triangle / <i>Oppv van driehoek</i> $= \frac{1}{2} \times 0,16 \text{ m} \times 0,11 \text{ m} \checkmark \text{SF}$ $= 0,0088 \text{ m}^2 \checkmark \text{CA}$ Total surface area of one pole <i>BO van een paal</i> $\checkmark \text{MCA}$ $= 4(0,2625 \text{ m}^2 + 0,0088 \text{ m}^2) \checkmark \text{MCA}$ $= 1,0852 \text{ m}^2 \checkmark \text{CA}$ VALID /GELDIG $\checkmark \text{O}$	1C conversion to metres 1SF substitute to correct formula 1CA total area of the rectangular pole 1SF substitute to correct formula 1CA total area of triangles 1MCA multiply both area by 4 MCA adding both areas 1CA answer area in m^2 1O conclusion (9)	
3.2.1	$\checkmark \text{SF}$ $900 \text{ cm}^2 = \text{side} \times \text{side}$ Side/Sy = 30 cm $\checkmark \text{A}$	1SF substitute to correct formula 1A simplification (2)	M L2

3.2.2	Circumference of the motarbooard $= 3,142 \times 60 \text{ cm} \checkmark \text{SF}$ $= 189,52 \text{ cm}$ $= 189 \text{ cm} \checkmark \text{A}$	1SF substitute to correct formula 1A simplification (2)	M L2
3.3.1	$\checkmark \text{C}$ $1,8 \times 2,54 = 4,52 \text{ cm} \checkmark \text{A}$	1C multiply by 2,54 1A simplification (2)	M L1
3.3.2	Radius $4,572 \text{ cm} = 2,286 \text{ cm} \checkmark \text{A}$ $\frac{2}{\text{Volume}} = 3,142 \times 2,286^2 \times 30,48 \checkmark \text{SF}$ $\text{Volume} = 500,4648675 \text{ cm}^3 \checkmark \text{A}$	1A radius 1SF substitute to the correct formula 1A simplification (3)	M L2
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
3.3.3	$\checkmark \text{SF}$ $38 ^\circ\text{C} = (^\circ\text{F} - 32) \times \frac{5}{9}$ $38 \times \frac{9}{5} = F - 32 \checkmark \text{S}$ $= 100,4^\circ\text{F}$ $\approx 100 ^\circ\text{F} \checkmark \text{R}$ OR $38 = \frac{5}{9} \times ^\circ\text{F} - 17,7777 \dots \checkmark \text{SF}$ $55,7777 \dots \times \frac{9}{5} = ^\circ\text{F} \checkmark \text{S}$ $100,04 = ^\circ\text{F}$ $100 \approx ^\circ\text{F} \checkmark \text{R}$	1 SF substitute to correct formula 1S changing subject of formula 1R rounding (3)	M L2
3.4.1	$\frac{1}{5} \checkmark \text{A}$ $\frac{1}{5} \checkmark \text{A}$ $= 0,2 \checkmark \text{CA}$	1A numerator 1A denominator 1CA simplification (3)	P L2
3.4.2	$\checkmark \checkmark \text{A}$ Less likely / <i>Minder Waarskynlik</i>	2A correct probability (2)	P L2

3.2.2	Mass in tons = $3,276 \text{ kg} \times 908 \checkmark \text{MCA}$ $= 2\,974,608 \text{ kg} \checkmark \text{S}$ $= 2\,974,608 \times 0,001 \checkmark \text{C}$ $= 2,974608 \text{ ton} \checkmark \text{CA}$ OR/OF Mass = $\frac{2\,974,608}{1\,000}$ $= 2,974608 \text{ ton}$	CA no of bricks from 3.2.1 1MCA multiplying/ <i>vermenigvuldig</i> 1S simplification/<i>vereenvoudig</i> 1C conversion/<i>omskakel</i> 1CA answer/<i>antwoord</i> NPR (4)	M TL 2 M
3.3.1	$1 \times 60 = 2 \times A \checkmark \text{MA}$ $A = 60 \div 2$ $= 30 \checkmark \text{A}$ $B = \frac{60}{15} = 4 \checkmark \text{A}$	1MA multiplying/ <i>vermenigvuldig</i> 1A value of/<i>waarde vir</i> A 1A value of/<i>waarde vir</i> B AO (3)	M TL 1 E
3.3.2	Inverse proportion/<i>omgekeerde verhouding</i> $\checkmark \checkmark \text{A}$ OR/OF Indirect proportion/<i>indirekte eweredigheid</i> $\checkmark \checkmark$	2A correct answer/ <i>korrekte antwoord</i> (2)	M TL 1 E
3.4.1	$60 \div 0,3937 \checkmark \text{MA}$ $= 152,4003048 \text{ cm} \checkmark \text{C} \div 100$ $= 1,52 \text{ m} \checkmark \text{C}$ OR/OF $60 \div 0,3937 \div 100$ $= 1,52 \text{ m}$	1MA dividing/<i>deling</i> 1C conversion to cm/<i>skakel om in cm</i> 1R rounding/<i>afronding</i> (3)	M TL2 M
3.4.2	Nick's BMI = $\frac{56 \text{ kg}}{(1,65 \text{ m})^2} \checkmark \text{SF}$ $= 20,57 \text{ kg/m}^2 \checkmark \text{A}$ Nicolene's BMI = $\frac{45 \text{ kg}}{(1,52 \text{ m})^2}$ $= 19,48 \text{ kg/m}^2 \checkmark \text{CA}$ Difference = $20,57 - 19,48 \checkmark \text{MCA}$ $= 1,09 \text{ kg/m}^2 \checkmark \text{CA}$ Ruth's statement is NOT correct $\checkmark \text{O}$	CA height from 3.4.1 1SF substitution/<i>vervang in formule</i> 1A simplification/<i>vereenvoudig</i> 1CA simplification/<i>vereenvoudig</i> 1MCA subtraction/<i>aftrekking</i> 1CA simplification/<i>vereenvoudig</i> 1O opinion/<i>opinie</i> (6)	M TL 4 M
		[39]	

QUESTION 4'S



QUESTION 4 EC

QUESTION 4 [35 MARKS]			
Ques.	Solution	Explanation	Level
4.1.1	Dimensions in mm = 17 inch $\times$ 25,4 $= 431,8 \text{ mm} \checkmark C$ $\therefore$ Volume $= \text{length} \times \text{width} \times \text{height}$ $= 431,8 \text{ mm} \times 431,8 \text{ mm} \times 431,8 \text{ mm} \checkmark SF$ $= 80\,509\,645,43 \text{ mm}^3 \checkmark CA$	1C converting dimension 1SF substitution 1CA volume (3)	M L2
4.1.2	Total surface area: $= 2(l \times w) + 2(l \times h) + 2(w \times h)$ $= 2(431,8 \times 431,8) + 2(431,8 \times 431,8) + 2(431,8 \times 431,8) \checkmark SF$ $= 372\,902,48 + 372\,902,48 + 372\,902,48 \checkmark M$ $= 1\,118\,707,44 \text{ mm}^2$ $\therefore \text{TSA} = \frac{1\,118\,707,44}{1\,000\,000} \checkmark C$ $= 1,12 \text{ m}^2 \checkmark CA$ (Accept 1,119 m²) $\therefore$ His statement is invalid $\checkmark O$ OR Total surface area: $= 2(l \times w) + 2(l \times h) + 2(w \times h)$ $= 2(0,4318 \times 0,4318) + 2(0,4318 \times 0,4318) + 2(0,4318 \times 0,4318) \checkmark C \checkmark SF$ $= 0,37290248 + 0,37290248 + 0,37290248 \checkmark M$ $= 1,12 \text{ m}^2 \checkmark CA$ (Accept 1,119 m²) $\therefore$ His statement is invalid $\checkmark O$	1SF substitution 1M multiply by 2 1C conversion 1CA surface area 1O opinion OR 1C conversion 1SF substitution 1M multiply by 2 1CA surface area 1O opinion NPR (5)	M L4
4.1.3	Number of boxes in length = $\frac{2,2}{0,4318} \checkmark M$ $= 5,094\dots$ $= 5 \text{ boxes} \checkmark A$ Number of boxes in width = $\frac{1,5}{0,4318}$ $= 3,473\dots$ $= 3 \text{ boxes} \checkmark A$ Number of boxes in height = $\frac{1,6}{0,4318}$ $= 3,705\dots$ $= 3 \text{ boxes} \checkmark A$ Total number of boxes $= 5 \times 3 \times 3$ $= 45 \text{ boxes} \checkmark MCA$	1M dividing correct values 1A number of boxes 1A correct number of boxes 1A correct number of boxes 1MCA multiplication and total number of boxes (5)	MP L3

4.2.1	$\text{Distance} = \text{Speed} \times \text{Time}$ $18\text{h}48\text{min} = 18,8 \text{ hrs} \checkmark \text{C}$ $1\,268 = \text{Speed} \times 18,8 \text{ h} \checkmark \text{SF}$ $\therefore \text{Speed} = \frac{1\,268}{18,8} \checkmark \text{M}$ $= 67,45 \text{ miles/h} \checkmark \text{CA}$ (Accept 67 OR 67,447 OR 67,5 miles/h)	1C converting time 1SF substitution 1M changing subject 1CA speed NPR (4)	MP L3
4.2.2	$1\,157 \text{ miles} = 1\,862 \text{ km}$ $1 \text{ mile} = \frac{1\,862}{1\,157} \checkmark \text{M}$ $= 1,609334... \checkmark \text{CA}$ $\approx 1,609 \text{ km} \checkmark \text{R}$	1M dividing by 1 157 1CA answer 1R rounding (3)	MP L2
43.1	$\text{Number of arches needed} = 11 \times 5 \checkmark \text{MA}$ $= 55 \text{ arches} \checkmark \text{A}$	1MA multiply correct values 1A number of arches (2)	M L2
43.2	$\text{Number of poles needed} = \frac{20}{5} \checkmark \text{M}$ $= 4 \text{ poles} \checkmark \text{CA}$	1M dividing by 5 1CA number of poles (2)	M L2
43.3	$\text{Number of steel rods needed} = 11 \text{ arches} \times 5 \text{ pegs} \checkmark \text{M}$ $= 55 \text{ steel rods} \checkmark \text{CA}$ The statement is valid $\checkmark \text{O}$	1M multiply correct values 1CA simplification 1O opinion (3)	M L4
4.3.4	$\text{Volume of a rectangular prism} = \text{length} \times \text{width} \times \text{height}$ $\checkmark \text{C}$ $= 1,2 \times 1 \times 1,4 \checkmark \text{SF}$ $= 1,68 \text{ m}^3 \checkmark \text{CA}$ $= 1,68 \text{ kl} \checkmark \text{C}$	1C conversion 1SF substitution 1CA simplification 1C total kilolitres (4)	M L3
4.3.5	Mask is for protection when spraying fertilisers. $\checkmark \checkmark \text{O}$	2O opinion (2)	M L4

4.3.5 Rainwater $\checkmark \checkmark \text{A}$

Underground water $\checkmark \checkmark \text{A}$

Borehole $\checkmark \checkmark \text{A}$

OR

OR

(Accept any relevant answer.)

QUESTION 4-GP				(32 marks)
Q	Answer	Explanation	Topic Level	Mark
4.1	4.1.1 $117 \text{ m}^2 = \ell \times 5,5 \text{ m} \checkmark \text{ SF}$ $\ell = 117 \text{ m}^2 \checkmark \text{ M}$ $5,5 \text{ m}$ $\ell = 21,27 \text{ m} \checkmark \text{ A}$	1SF correct substitution 1M changing the subject of the formula 1A correct answer	M2	3
	4.1.2 $8 + 4,8 + 8 + 4,8 \checkmark \text{ MA}$ $= 25,6 \text{ m} \checkmark \text{ CA}$ OR $P = 2(8 + 4,8)$ $= 25,6 \text{ m}$ $\therefore 36 \text{ m of railing will be enough} \checkmark \text{ O}$	1MA adding all four values 1CA correct length 1O conclusion	M4	3
	4.1.3 The areas are not all calculated correctly. $\checkmark \text{ J}$ Saloon: $13 \text{ m} \times 4,75 \text{ m}$ area = $61,75 \text{ m}^2 \checkmark \text{ A}$ Upper deck: $8 \text{ m} \times 4,8 \text{ m}$ area = $38,4 \text{ m}^2 \checkmark \text{ A}$	1J identifying errors 2A fixing errors	M4	3
4.2	4.2.1 Height $B = 39,5 \text{ cm} / 100 = 0,395 \text{ m} \checkmark \text{ C}$ Along the length of the deck Lengthwise = $\frac{8 \text{ m}}{0,65 \text{ m}} \checkmark \text{ M}$ $= 12,3076 \checkmark \text{ CA}$ $= 12 \text{ boxes} \checkmark \text{ R}$ Widthwise = $\frac{4,8 \text{ m}}{0,42 \text{ m}} \checkmark \text{ M}$ $= 11,4285$ $= 11 \text{ boxes} \checkmark \text{ CA}$ Height = $\frac{0,9 \text{ m}}{0,395}$ $= 2,278$ $= 2 \text{ boxes} \checkmark \text{ CA}$ Total boxes to be packed $= 12 \times 11 \times 2 \checkmark \text{ MCA}$ $= 264 \text{ boxes} \checkmark \text{ CA}$	1C converting height 1M dividing lengths 1CA correct answer 1R rounding down 1M dividing width 1CA whole boxes 1CA whole boxes 1MCA multiplying values 1CA total number of boxes	MP3	9

	4.2.2	Length/widthwise = $\frac{8 \text{ m}}{0,42 \text{ m}}$ = 19,0476 = 19 boxes ✓ M Width/Lenghtwise = $\frac{4,8 \text{ m}}{0,65 \text{ m}}$ = 7,384615 = 7 boxes ✓ M Height = $\frac{0,9 \text{ m}}{0,395}$ = 2,278 boxes = 2 boxes ✓ M Total boxes = 19 x 7 x 2 ✓ MCA = 266 boxes ✓ CA Therefore, the claim is invalid ✓ O	1M number of boxes 1M number of boxes 1M number of boxes 1MCA multiplying all three values 1CA answer 1O conclusion	MP3	6
4.3	4.3.1	Number of people on the cruise ship = 66 Probability of female passenger = $\frac{31}{66} \times 100$ ✓ A = 46,97% ✓ CA	1A numerator 1A denominator 1CA answer NPR	P2	3
	4.3.2	Probability (not a crew member) = 66 – 12 = 54 ✓ M $\frac{54}{66}$ ✓ A $\frac{54}{66}$ ✓ A	1M total number of people 1A numerator 1A denominator AO	P2	3
	4.3.3	Probability is the chance of picking a particular person out of all the people on the sailing ship. ✓✓ J	2D explanation of probability	P1	2
					[32]

QUESTION 4 [30 MARKS]-KZN			
Ques t.	Solution	Explanation	T & L
4.1.1	$\begin{aligned} & \checkmark \text{SF} \quad \checkmark \text{M A} \quad \checkmark \text{SF} \\ & \text{Area of metal border} = (3,142 \times 57^2) - (3,142 \times 50^2) \\ & = 2\,353,36 \text{ cm}^2 \checkmark \text{CA} \end{aligned}$	2SF correct values 1MA subtracting area 1CA answer (4)	M L 3 M
4.1.2	$\begin{aligned} & \checkmark \text{SF} \\ & \text{SA} = (3,142 \times 50^2) + (2 \times 3,142 \times 50 \times 25) \\ & = 15\,710 \text{ cm}^2 \checkmark \text{A} \\ \\ & \text{Total area} = 2\,353,36 + 15\,710 \checkmark \text{MA} \\ & = 18\,063,36 \text{ cm}^2 \checkmark \text{CA} \\ \\ & \text{Convert to m}^2 = 18\,063,36 \div 100^2 \checkmark \text{C} \\ \\ & = 1,806336 \checkmark \text{CA} \\ \\ & \text{Including 10\%} = 1,806336 \times 1,10 \checkmark \text{MA} \\ & = 1,986 \text{ m}^2 \\ & = 1,99 \text{ m}^2 \\ \\ & \text{Siya's claim is } \mathbf{CORRECT} \checkmark \text{O} \end{aligned}$	CA from Q4.1.1 1SF correct values 1A correct answer 1M A adding area 1CA answer 1C Conversion 1CA answer 1MA multiplying by 1.10% 1O opinion (8)	M L 4 D
4.1.3	$\begin{aligned} & \checkmark \text{MCA} \quad \checkmark \text{MA} \\ & \text{Number of litres} = (1,99 \times 2) \div 5 \\ & = 0,796 \text{ litres} \checkmark \text{CA} \\ & = 1 \text{ litre} \checkmark \text{R} \end{aligned}$	CA from Q4.1.2 1MCA multiplying by 1,99 1MA dividing by 5 1CA answer 1R rounding (4)	M L2 M

4.2.1	$\begin{aligned} & \text{Fixed cost} = \text{R}800 + \text{R}650 \checkmark \text{MA} \\ & = \text{R}1\,450 \\ \\ & \text{Cost price} = (530 \div 2) + 199 \checkmark \text{MA} \end{aligned}$	1MA adding correct values 1MA dividing by 2 and adding	M L3 M
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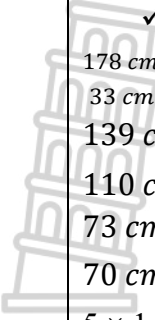
		$= R464$ $\checkmark A \quad \checkmark A \quad \checkmark A$ $\text{Total Expense} = R1\ 450 + (R464 \times \text{number of fire pits})$	199 1A for R1 450 1A for R464 1A number of fire pits (5)	
4.2.2	a	$\checkmark A \quad \checkmark A$ 2,7 fire pits; R2700	2A correct values (2) Accept 3; R 2 700	M L 2 M
4.2.2	b	Income made selling the fire pits is equal to expenses incurred in making the fire pits $\checkmark \checkmark O$	2O explanation (2)	M L 1 E
4.2.3		$\checkmark RT \quad \checkmark MA \quad \checkmark MA$ $\text{Profit} = (R1000 \times 15) - (1450 + R464 \times 15)$ $= R6\ 590 \checkmark CA$ Siya is INCORRECT $\checkmark O$	CA from Q4.2.1 1RT selling price 1MA subtracting 1450 1MA subtracting cost 1CA answer 1O opinion (5)	M L 4 M
			[30]	

4.2.1		Fixed cost = $R800 + R650 \checkmark MA$ $= R1\ 450$ Cost price = $(530 \div 2) + 199 \checkmark MA$ $= R464$ $\checkmark A \quad \checkmark A \quad \checkmark A$ $\text{Total Expense} = R1\ 450 + (R464 \times \text{number of fire pits})$	1MA adding correct values 1MA dividing by 2 and adding 199 1A for R1 450 1A for R464 1A number of fire pits (5)	M L 3 M
4.2.2	a	$\checkmark A \quad \checkmark A$ 2,7 fire pits; R2700	2A correct values (2) Accept 3; R 2 700	M L 2 M

4.2.2 b	Income made selling the fire pits is equal to expenses incurred in making the fire pits ✓✓O	2O explanation (2)	M L 1 E
4.2.3	$\begin{aligned} \text{Profit} &= (\text{R}1000 \times 15) - (1450 + \text{R}464 \times 15) \\ &= \text{R}6\,590 \checkmark \text{CA} \end{aligned}$ Siya is INCORRECT ✓O	CA from Q4.2.1 1RT selling price 1MA subtracting 1450 1MA subtracting cost 1CA answer 1O opinion (5)	M L 4 M
		[30]	

QUESTION/VRAAG 4 [33 MARKS/PUNTE]-MP			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
4.1.1	$\checkmark \checkmark \text{RT}$ 21 seats/sitplekke	2RT correct number of seats (2)	Maps L2
4.1.2	$\checkmark \text{RT} \quad \checkmark \text{RT}$ H 10 , H 11, H 12 ✓RT	3RT all three seats (3)	Maps L2
4.1.3	$\checkmark \text{MA}$ $2,5 \times 1,609 = 4,0225 \text{ km/h}$ $\text{Time/Tyd} = \frac{1,5}{60}$ $= 0,025 \text{ hrs } \checkmark \text{A}$ $\text{Distance/Afstand} = 4,0225 \times 0,025$ $\checkmark \text{A}$ $= 0,1005625 \text{ km}$ $0,1005625 \text{ km} \times 1\,000 \checkmark \text{C}$ $= 100,56 \text{ metres } \checkmark \text{CA}$	1MA multiply by 1, 609 1A correct time in hours 1SF substitute to correct formula 1S changing subject of formula 1A correct distance in km 1C conversion to metres 1CA Simplification (7)	Maps L3
4.1.4 (a)	Media , sound controller ✓✓O Media tafel, Klank beheer	2O Opinion (2)	M L4

4.1.4 (b)	$\frac{\sqrt{A}}{4}$ $\frac{346\sqrt{A}}{346}$	1A numerator 1A Denominator (2)	P L2
4.2.1.	$\frac{680 \text{ mm}}{2} = 340 \text{ mm}$ $\frac{340 \text{ mm}}{10} + 650 \text{ mm} + \frac{1080 \text{ mm}}{90} = 108 \text{ cm} \quad \checkmark A$	1RT all values 1MA adding correct values 1A correct length (3)	M L2
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
4.2.2	$\frac{900 \text{ mm}}{10} = 90 \text{ cm} \quad \checkmark A$ Area/Oppervlakte $108 \text{ cm} \times 90 \text{ cm} = 9720 \text{ cm}^2 \quad \checkmark A$ $9720 \text{ cm}^2 \times 4 = 38\,880 \text{ cm}^2$ $\frac{38\,880}{100 \times 100} = 3,888 \text{ m}^2 \quad \checkmark CA$ OR $\frac{900 \text{ mm}}{1\,000} = 0,9 \text{ m} \quad \checkmark A$ $\frac{108 \text{ cm}}{100} = 1,08 \text{ m} \quad \checkmark C$ Area/Oppervlakte $= 1,08 \text{ m} \times 0,9 \text{ m} = 0,972 \text{ m}^2 \quad \checkmark A$ $0,972 \text{ m}^2 \times 4 = 3,888 \text{ m}^2 \quad \checkmark CA$	CA from 4.2.1 1A correct width 1SF substitute to correct formula 1A correct area 1MA multiply by 4 1C divide by 100 ² 1CA Simplification 1A correct width 1C cm to m 1SF substitute to correct formula 1A correct area 1MA multiply by 4 1CA Simplification (6)	M L3
4.2.3	$\frac{900 \text{ mm} - 700 \text{ mm}}{2} = 100 \text{ mm} \quad \checkmark A$ mx	1MA subtracting correct values 1M dividing by 2 1A simplification (3)	M L2

4.3	 ✓MA $\frac{178 \text{ cm}}{33 \text{ cm}} = 5 \quad \checkmark A$ $\frac{139 \text{ cm}}{110 \text{ cm}} = 1 \quad \checkmark A$ $\frac{73 \text{ cm}}{70 \text{ cm}} = 1 \quad \checkmark A$ $5 \times 1 \times 1 = 5 \text{ boxes} \checkmark MCA$	1MA dividing with correct values 1A correct number boxes 1A correct number of boxes 1A correct number of boxes 1MCA total number of boxes (5)	Maps L3
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QUESTION/VRAAG 4 [22 MARKS/PUNTE]-NW			
4.1.1	Diameter /deursnee = $2,5 \times 2,54 \checkmark MA = 6,35 \text{ cm} \checkmark C$ $r = \frac{6,35}{2} = 3,175 \text{ cm} \checkmark A$ Volume of tin/can/van blikkie $= 3,142 \times r^2 \times h$ $= (3,142) \times (3,175)^2 \checkmark SF \times (12,065) \checkmark SF$ $= 382,138651 \text{ cm}^3 \checkmark CA$ $= 382 \text{ cm}^3$	1MA multiplying/ <i>vermenigvuldig</i> 1C converted <i>answer/omgeskakelde antwoord</i> 1A radius 1SF substitution <i>radius²/vervangings radius²</i> 1SF substitution into <i>formula/vervangings in formula</i> 1CA simplification/ <i>vereenvoudiging</i> (6)	M TL 2 M
4.1.2	95% of volume $382 \text{ cm}^3 = 382 \text{ ml} \checkmark C$ $= \frac{95}{100} \times 382 \text{ ml} \checkmark M$ $= 362,9 \text{ ml} \checkmark CA$ $= 363 \text{ ml} \checkmark R$	1C conversion/<i>omskakeling</i> 1MA multiplying/<i>vermenigvuldig</i> 1CA simplification 1R rounded answer. (4)	M TL 2 E

4.2	Length of the table/<i>tafel se lengte</i> = 1,75 m 50% of the length/<i>50% van lengte</i> = $1,75 \text{ m} \div 2$ = 0,875 m ✓ A If the scale of 1 : 10 is used/<i>Skaal 1:10 word gebruik</i> ✓ M Length of model/<i>lengte van model</i> = $4,8 \text{ m} \div 10 \times 1$ = 0,48 ✓ CA 0,48 will fit on the actual table/<i>0,48 sal op die werklike tafel pas</i> ✓ O The scale of 1 : 10 will be suitable/<i>die skaal 1:10 sal geskik wees</i>. ✓ O	1A calculating 50% of table size/ <i>bereken 50% van die tafel se grootte</i> 1M using scale/<i>gebruik skaal</i> 1CA calculating model length/ <i>bereken die lengte van die model</i> 1O opinion/<i>opinie</i> 1O opinion/<i>opinie</i> (5)	M&P TL4 D
4.3.1	Bus 1: Leave/<i>Vertrek van</i> Horison View: 6:02 Arrive at/<i>arriveer in</i> Rosebank: 7:17 Travel time/<i>Reistyd</i> = $7:17 - 6:02$ ✓ RT ✓ MCA = 1:15 Take 1 hour 15 minutes/<i>Sal 1 uur 15 minute reis</i>. ✓ CA	1RT correct times/<i>korrekte tye</i> 1MCA subtract/<i>aftrekking</i> 1CA answer/<i>antwoord</i> (3) AO	M TL 2 E
4.3.2	Arrive at 7:17 then walks 15 minutes, start to work after 10 minutes of rest/<i>Arriveer 7:17, stap vir 15 minute en begin werk na 10 minute se rus</i>. $7:17 + 10 \text{ min} + 15 \text{ min}$ ✓ MA = 7:42 will work for 9hrs 45 min/<i>werk vir 9 uur 45 min</i> = $7:42 + 9:45$ ✓ MCA = 17:27 ✓ A No will not knock off at 17:00/<i>Nee hy sal nie klaar wees teen 17:00 nie</i> ✓ O	1MA add times to get starting time/ <i>tel tyd om regte begin tyd te bereken</i> 1MCA add 9hr45min hours/<i>tel 9ur 45min ure by</i> 1CA correct end time/<i>regte eindtyd</i> 1O opinion/<i>opinie</i> (4)	M TL 4 M

QUESTION 5'S

QUESTION 5 [23 MARKS]-EC			
Ques.	Solution	Explanation	Level
5.1.1	$\text{Probability} = \frac{2 \checkmark A}{6 \checkmark A} \times 100\%$ $= 33,33\% \checkmark CA$ (Accept 33,3% OR 33,333%)	1A numerator 1A denominator 1CA % (NPR)	P L2
5.1.2	$\text{Actual distance} = 815,6 \text{ km} - 144,9 \text{ km} \checkmark M$ $= 670,7 \text{ km}$ $\therefore 670,7 \times 1\,000 \checkmark C$ $= 670\,700 \text{ m} \checkmark CA$	1M subtract correct values 1C conversion 1CA answer	MP L2
5.1.3	$\text{Map distance} = \frac{81\,560\,000}{9\,600\,000} \checkmark MA$ $= 8,4958... \checkmark CA$ $\approx 8,5 \text{ cm} \checkmark R$	1MA dividing correct values 1CA answer 1R one decimal place	MP L2
5.1.4	$\text{Speed} = \frac{\text{Distance}}{\text{Time}} \checkmark SF$ $80 \text{ km/h} = \frac{815,6 \text{ km}}{\text{Time}} \checkmark M$ $\text{Time} = \frac{815,6 \text{ km}}{80 \text{ km/h}}$ $= 10,195 \text{ h}$ $= 10 \text{ hours } 11 \text{ minutes } 42 \text{ seconds} \checkmark CA$ $\therefore \text{Time bus travelled} = 10:11:42$ $\checkmark A$ $\checkmark M = \frac{01:45:00}{} = 08:26:42$ $= 8 \text{ hours } 26 \text{ minutes } 42 \text{ seconds} \checkmark CA$ (Accept 8h 26 min OR 8h 27 min)	1SF substitution 1M changing subject 1CA time in hours and minutes 1A Total time for stopovers (1h 45 min) 1M subtract time 1CA time bus travelled NPR	MP L3
5.2.1	The space left allow for movement of the fluid during temperature change or transportation of the bottles. $\checkmark \checkmark O$ (Accept any other relevant response.)	2O opinion	M L4
5.2.2	$\text{Number of rectangular bottles in box} = \frac{5}{5} \times 75 \checkmark M$ $= 45 \checkmark A$ $\therefore \text{Probability} = \frac{45}{75} \checkmark CA$	1MA multiply correct fraction with 75 1A number of rectangular bottles 1CA correct probability	P L2
5.2.3	$\text{Volume} = 3,142 \times \text{radius}^2 \times \text{height}$ $= 3,142 \times 4^2 \times 5 \checkmark SF$ $= 251,36 \text{ m}^3$ $\approx 251 \text{ m}^3 \checkmark CA$ $\therefore \text{Pam's statement is invalid} \checkmark O$	1SF substitution 1CA volume 1O opinion	M L4
[23]			

QUESTION 5 -GP (26 marks)				
Q	Answer	Explanation	Topic Level	Mark
5.1	5.1.1 NOTE: use measurements from the printed copy. $15 \text{ cm} : 1\,186 \text{ km} \checkmark \text{ M}$ $15 \text{ cm} : 118\,600\,000 \checkmark \text{ C}$ $\frac{15 \text{ cm}}{15 \text{ cm}} : \frac{118\,600\,000 \text{ cm}}{15 \text{ cm}} \checkmark \text{ M}$ $1 : 7\,906\,666,667 \checkmark \text{ CA}$ $\cong 1 : 8\,000\,000 \checkmark \text{ R}$	1M ratio format 1C converting to cm 1M simplifying 1CA scale in unit form 1R scale in rounded form	MP3	5
	5.1.2 Speed = $\frac{1\,405 \text{ km}}{13,5 \text{ h}} \checkmark \checkmark \text{ M}$ $= 104,074 \text{ km/h} \checkmark \text{ A}$ $= 104 \text{ km/h} \checkmark \text{ R}$	2M substitution 1A answer 1R rounded answer	MP3	4
	5.1.3 $13,5 \div 2 \checkmark \text{ M} = 6,75$ $= 6 \text{ rests} \checkmark \text{ A}$ (not 7, because Jongi would have arrived at destination during the last rest). $\checkmark \text{ MCA}$ $\therefore 6 \times 15 \text{ minutes}$ $= 90 \text{ minutes}$ $= 1 \text{ hour } 30 \text{ minutes} \checkmark \text{ CA}$ $\checkmark \text{ MCA}$ $\therefore \text{Journey} = 13 \text{ hours } 30 \text{ minutes} + 1 \text{ hour } 30 \text{ minutes}$ $= 15 \text{ hours} \checkmark \text{ CA}$	1M dividing driving time 1A number of rests 1MCA calculating rest time 1CA total rest time 1MCA addition of time 1CA total travelling time	MP3	6
5.2	5.2.1 Step 3: Attach left and right side panels $\checkmark \checkmark \text{ A}$ Step 4: Attach the top surface with cam locks, cam pins, and dowels. Then insert the four leveling glides $\checkmark \checkmark \text{ A}$ Step 5: Insert shelf pins into holes along the interior sides. Place the shelf on top of the pins. $\checkmark \checkmark \text{ A}$ NOTE: Read what the candidate has written and award marks if it makes sense	2A step 3 instructions 2A step 4 instructions 2A step 5 instructions	MP2	6

5.2.2	To assist with the assembling and lifting of parts. ✓✓ O	2A reasoning	MP4	2
5.2.3	Screwdriver ✓✓ A	2A tool	MP1	2
5.2.4	$\begin{aligned} & \text{Total surface area} = 2(700 \times 350) \\ & + 2(700 \times 690) + 2(350 \times 690) \\ & = 490\,000 + 966\,000 + 483\,000 \quad \checkmark M \\ & = 19\,390 \\ & 1\,939\,000 \text{ mm}^2 \div 10^2 = 19\,390 \\ & \text{cm}^2 \quad \checkmark CA \end{aligned}$	2M substitution 1M simplification 1CA answer in cm^2	M3	4
				[29]

QUESTION 5 [29 MARKS]-KZN

Quest.	Solution	Explanation	T & L
5.1.1	Distance in miles = $4158 \times 1,151 \quad \checkmark C$ $= 4785,858 \quad \checkmark A$ Distance in km = $4785,858 \div 0,6215 \quad \checkmark C$ $= 7700,50 \text{ km} \quad \checkmark CA$	1C conversion 1A correct answer 1C conversion 1CA correct answer (4) NPR	MP L2 M
5.1.2	Time in hours = $10 \div 60 \quad \checkmark C$ $= 0,167 \quad \checkmark A$ Speed = $7700,50 \text{ km} \div 13,167 \text{ hours} \quad \checkmark MA$ $= 584,83 \text{ km/h} \quad \checkmark CA$	CA from Q5.1.1 1C conversion 1A correct answer 1MA dividing by 13,167 1CA answer (4)	M P L 3 M
5.1.3	Number of people per $\text{km}^2 = 2\,900\,000 \div 1285,3 \quad \checkmark MA$ $= 2\,256,28258$ $= 2\,256 \quad \checkmark A$	1MA dividing by 1285,3 1A correct answer (2)	M P L 1 M
5.2.1	Distance on map = $9,8 \text{ cm} \quad \checkmark A$	1A measuring distance	MP L3

	✓MCA ✓C Actual Distance: $= (9,8 \text{ cm} \times 2\,000\,000) \div 100\,000$ $= 196 \text{ km}$ ✓CA	1MCA multiplying by scale 1C convert to km 1CA simplification (4) Accept 9,7cm to 9,9 cm	M
5.2.2	Cost of train trip $= €52 \div €0,049$ ✓C $= R1\,061,22$ ✓A Fraction of the cost $= 1\,061,22 \div 2697$ ✓MA $= 0,39$ ✓CA Mia's claim is INCORRECT ✓O	1C Conversion 1A correct answer 1MA dividing by 2697 1CA answer 1O opinion (5)	M P L 4 D
5.2.3	Return trip $= 60,9 \times 2$ ✓MA $= 121,8 \text{ km}$ ✓A Litres of petrol $= (121,8 \times 6,6) \div 100$ ✓MA $= 8,0388 \text{ litres}$ ✓CA Cost $= €1,865 \times 8,0388$ ✓MCA $= €14,99$ ✓CA	1MA multiplying by 2 1A correct answer 1MA multiplying by 6,6 and dividing by 100 1CA answer 1MCA multiplying by 8,04 1CA answer (6)	M P L 3 D
5.2.4	Time in mins $= 75+45+75+90$ ✓MA $= 285 \text{ mins}$ ✓A Time in hours and mins $= 285 \div 60$ ✓C $= 4 \text{ hours } 45 \text{ mins}$ ✓CA Arrival Time $= 13:45 + 4 \text{ hours } 45 \text{ mins}$ ✓MCA $= 18:30$ Statement is CORRECT ✓O	1MA adding time 1A correct answer 1C Conversion 1CA convert to hours and mins 1MCA adding time 1O opinion	M P L 4 D

		(5)	
		[30]	

QUESTION/VRAAG 5 [28 MARKS/PUNTE]-MP			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T/L
5.1.1	9 days ✓✓A	2A correct number of days (2)	M L1
5.1.2	$\checkmark$ RT $\checkmark$ MA $2\text{h } 45\text{ minutes} \times 3 \times 9 = 74\text{ h } 15\text{ mins}$ ✓A $74\text{ h } 15\text{ mins}$ $\frac{74\text{ h } 15\text{ mins}}{60} = 74,25\text{ hours}$ ✓CA	Ca from 5.1.1 1RT 2h 45 minutes 1MA multiply with correct values 1A correct time 1CA Simplification (4)	M L2
5.1.3	Lunch time/Middagete $\checkmark$ MA 7:30 $+ 2\text{h } 45\text{ min} + 15\text{ min} + 2\text{ h } 45\text{ min}$ $= 13:15$ ✓CA CORRECT/KORREK ✓O	1MA adding all correct values 1CA lunch time 1O conclusion (3)	M L4
5.2.1	$\checkmark$ MA $53 \times 33 \times 32 = 55\,968\text{ cm}^3$ ✓A $55\,968\text{ cm}^3 = 55\,968\text{ ml}$ $\frac{55\,968}{1\,000} = 55,968\text{ litres}$ ✓A $1\,000$ ✓C $55,968 \div 3,785\text{ liters per gallon}$ ✓M $14,78\text{ gallons} \times 20$ $= 295,6\text{ gallons}$ $\approx 296\text{ gallons}$ ✓R	1MA multiply with correct values 1A correct volume in cubic centimetres 1C divide by 1 000 1A volume to litres 1MA divide by 3,785 1R Rounding (6)	M L2

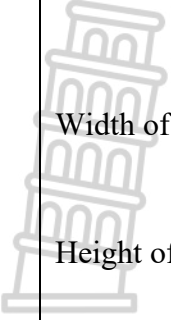
5.2.2	$\checkmark$ MA $\frac{350}{23,90} = 14,64$ ✓A $\checkmark$ MA $14,64 \times 20 = 293,89$ $\pounds 300,00$ ✓R	1MA divide by 23,90 1A amount in pounds 1MA multiply by 20 1R correct rounding (4)	M L2
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5.2.3	Height/<i>Hoogte</i> = $\frac{1}{2} \times 32$ cm ✓A Surface area/<i>Buite oppervlakte</i> ✓SF = $53 \times 33 + 2(53 \times 16) + 2(33 \times 16)$ = $1\,749 \text{ cm}^2 + 1\,696 \text{ cm}^2 + 1\,056 \text{ cm}^2$ ✓MA = $4\,501 \text{ cm}^2$ ✓CA	1A correct height 1SF substitution to correct formula 1MA adding correct values 1CA simplification (4)	M L2
5.3.1	Decoration/<i>Versiering</i> ✓✓A OR Market the business/<i>Bemarking</i> ✓✓A OR Toy for kids/<i>Speelgoed vir kinders</i> ✓✓A	2A correct reason (2)	M L4
5.3.2	$\frac{53}{10} = 5,3$ ✓MA ✓A $\frac{33}{5} = 6,6$ ✓A OR $10 \times 6 = 60$ cm ✓MA $5 \times 6 = 30$ cm ✓MA $4 \times 6 = 24$ cm ✓MA	1MA calculating correct scale factor lengthwise 1A correct scale factor 1A correct scale factor 1MA multiplying scale factor with model measurement 1MA multiply correct values 1MA multiply correct values (3)	Maps L2

QUESTION/VRAAG 5 [28 MARKS/PUNTE]-NW			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
5.1.1	SCALE /SKAAL 25 mm : 100 km Distance measured/afstande gemeet = 108 mm ✓C Actual distance/werklike afstand = $108 \times \frac{100}{25}$ km ✓CA = 432 km ✓CA OR/OF 2,5 cm : 100 km 10,8 cm : x km ✓C $10,8 \times \frac{100}{2,5}$ km ✓CA = 432 km ✓CA OR/OF 25 mm : 100 km 25 mm : 100 000 000 mm 1 : 4 000 000 ✓A Actual distance = 10,8 cm × 4 000 000 ✓MCA = 43 200 000 cm = 432 km ✓CA	1C conversion/omskakeling 1CA multiply with 100 and divide with 25/vermenigvuldig met 100 en deel met 25 1CA answer/antwoord OR/OF 1C conversion/omskakeling 1CA multiply with 100 and divide with 2,5/vermenigvuldig met 100 en deel met 2,5 1CA antwoord/answer OR/OF 1A number scale/nommerskaal 1MCA multiplying/ vermenigvuldiging 1CA answer/antwoord (3)	M&P TL 3 M



5.1.2	$T = \frac{432 \text{ km}}{120 \text{ km/h}} \checkmark \text{SF}$ $= 3,6 \text{ hours} \checkmark \text{A}$ $= 3 \text{ hour } 36 \text{ minutes} \checkmark \text{CA}$ $8 + 3 \text{ hours /ure } 36 \text{ minutes/minute} \checkmark \text{M}$ $= 11:36 \checkmark \text{C}$ Yes, she will arrive before 12:00/midday Ja, sy arriveer voor 12:00 $\checkmark \text{O}$	CA distance from/afstand van 5.1.1 1SF substitute into formula/vervang in formule 1A answer/antwoord 1C hours and minutes/ure en minute 1MCA adding time /tel tyd bymekaar 1CA answer/antwoord 1O opinion/opinie (6)	M&P TL 4 M
5.2.1	90 % OR 0,9 of roses/van die rose = 12 + 15 90% of the total number of roses = 27 90% van die totale aantal rose = 27 $\checkmark \text{M}$ $\text{Total roses/totaal rose} = \frac{27}{0,9} \checkmark \text{MA}$ $= 30 \text{ roses/rose} \checkmark \text{CA}$ OR/OF 27 roses/rose : 90% x roses/rose : 100% $27 \times \frac{100}{90} \text{ roses}$ $= 30 \text{ roses/rose}$	1A Total of pink and red roses/aantal pienk en rooi rose 1MA divide total by/deel totaal deur 90% 1CA answer/antwoord (3)	P TL 3 M
5.2.2	Different colors/Verskillende kleure: $30 - 27$ $= 3 \checkmark \text{CA}$ $P = \frac{3}{30} \checkmark \text{CA}$ $= 0,1 \checkmark \text{CA}$ The statement is correct/Haar stelling is reg $\checkmark \text{O}$	CA no of roses with/getal rose met 5.2.1 1CA different coloured roses/verskillende kleur rose 1CA fraction/breuk 1CA simplification/vereenvoudig 1O opinion/opinie (4)	P TL 4 E
5.3.1	$^{\circ}\text{F} - 32^{\circ} = \frac{9}{5} \times ^{\circ}\text{C}$ $275^{\circ} - 32^{\circ} = \frac{9}{5} \times ^{\circ}\text{C} \checkmark \text{SF}$ $243^{\circ} \checkmark \text{A} \times \frac{5}{9} = ^{\circ}\text{C} \checkmark \text{MCA}$ $135^{\circ}\text{C} \checkmark \text{CA}$	1SF substitution/vervanging 1A answer/antwoord 1MCA changing the subject/verander onderwerp 1CA simplification/vereenvoudig (4)	M TL 2 M

5.3.2 (a)	 Length of the box/<i>lengte van kartonhouer</i> $= 6 \times (7,5 \text{ cm} + 0,8 \text{ cm}) \checkmark \text{MA}$ $= 6 \times 8,3 \text{ cm}$ $= 49,8 \text{ cm} \checkmark \text{CA}$ Width of the box $= 3 \times (7,5 \text{ cm} + 0,8 \text{ cm})$ $= 3 \times 8,3$ $= 24,9 \text{ cm} \checkmark \text{CA}$ Height of the box $= 2 \times (8 \text{ cm}) \checkmark \text{A} + 0,8$ $= 2 \times 8,8$ $= 17,6 \text{ cm} \checkmark \text{CA}$ The dimensions of the box are: $49,8 \text{ cm} \times 24,9 \text{ cm} \times 17,6 \text{ cm}$	1MA multiplying number of jars by diameter and space/<i>vermenigvuldig aantal bottels met deursnee en spasie</i> 1CA length/<i>lengte</i> 1CA width/<i>breedte</i> 1A identifying the height of the bottle/<i>identifiseer hoogte van die bottel</i> 1CA height/<i>hoogte</i> (5)	M&P TL 3 D
5.3.2 (b)	Volume of the box/<i>van karton houer</i> $= 49,8 \text{ cm} \times 24,9 \text{ cm} \times 17,6 \text{ cm} \checkmark \text{SF}$ $= 21\,824,352 \text{ cm}^3 \checkmark \text{CA}$ $= 0,021824352 \text{ m}^3 \checkmark \text{C}$ OR/OF Volume of the box/<i>volume van karton houer</i> $= 0,498 \text{ m} \times 0,249 \text{ m} \times 0,176 \text{ m}$ $= 0,021824352 \text{ m}^3$	CA dimensions from/afmetings van 5.3.2(a) 1SF substitution/<i>vervanging</i> 1CA simplification/<i>vereenvoudig</i> 1C conversion/<i>omskakeling</i> OR/OF 1C conversion/<i>omskakeling</i> 1SF substitution/<i>vervanging</i> 1CA simplification/<i>vereenvoudig</i> NPR (3)	M TL2 M
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