

PREPARATORY EXAMINATION





TIME: 3 hours

MARKS: 150

15 pages and an addendum with 4 annexures





INSTRUCTIONS AND INFORMATION

- 1. This question paper consists of FIVE questions. Answer ALL the questions.
- 2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

ANNEXURE A for QUESTION 2.1 ANNEXURE B for QUESTION 3.1 ANNEXURE C for QUESTION 5.1 ANNEXURE D for QUESTION 5.2

- 3. Number the answers correctly according to the numbering system used in this question paper.
- 4. Start EACH question on a NEW page.
- 5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
- 6. Show ALL calculations clearly.
- 7. Round-off ALL final answers appropriately according to the given context, unless stated otherwise.
- 8. Indicate units of measurement, where applicable.
- 9. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
- 10. Write neatly and legibly.



Downloaded from Stanmorephysics com MATHEMATICAL LITERACY 3 10602/24 (PAPER 2) **OUESTION 1** Kriel travelled to Robertson (a town in the Western Cape) during the school holidays to visit his 1.1 aunt Nini. A part of the map of Robertson that Kriel used for his journey is shown below. Study the map and use it to answer the questions that follow. N Robertson Backpackersorep Vlettershof Guest House unite St. Ballinderry - The Robertson Guest House VanoustshoomSt C **Robertson Small Hotel** Paulkugerst Jantist. Allerst 15 210 wind whitest Lan Reenen St Four Cousins **GUBAS DE HOEK** aurant Robertson meet eat sleep O Robertson Refriç U Divie Ursst R60 Route 62 B&B n Carewel Private SUPERSPAR Robertson Alver Av Robertson High School Eten Octoes sur 6 edar Lodge Ribbok Guest House Top rated Robertson Wine Valley terts Johan De Jongy, U moreph Robertson Winer Pell2 SI AH Marais **R60** Checkers Robertson Quarter

[Source: https://www.google.com/maps/@-33.8060619,19.8805874,15z?entry=ttu]

1.1.1	Name the road that passes through Robertson Winery and Robertson Wine Valley.	(2)
1.1.2	Determine the general direction of the Robertson Small Hotel from the Cedar Lodge Guest House.	(2)
1.1.3	Name TWO grocery stores indicated on the map.	(2)
1.1.4	Identify the name of the high school indicated on this map.	(2)
1.1.5	Kriel arrived in Robertson at 11:03. Write down the time of Kriel's arrival in words.	(2)
1.1.6	Identify the type of map shown above.	(2)

Downloaded from Stanmorephysics com MATHEMATICAL LITERACY 4 (PAPER 2) 10602/24

Mr Soetmelk owns a house. A floor plan of the house is shown below. 1.2



[Source: https://www.roomsketcher.com/blog/floor-plan-dimensions]

Study the floor plan above and use it to answer the following questions.

1.2.1	Determine the number of windows on the eastern elevation of the floor plan.	(2)
1.2.2	How many bedrooms are indicated on the floor plan?	(2)
1.2.3	Write, as a simplified ratio, the number of doors to the number of windows on the floorplan.	(2)
1.2.4	Mr Soetmelk stated that the perimeter of the floor plan is 45,06 m. Explain the word <i>perimeter</i> in the given context.	(2)
1.2.5	Select from the options below the correct unit that can be used for the area of the master bedroom. Write only the letter $(A - C)$ next to the question number (1.2.5).	
	A. m B. m^2 C. m^3	(2)

(2)

Downloaded from Stanmorephys

MATHEMATICAL LITERACY (PAPER 2) 10602/24

5

1.3 Mr Soetmelk's wife bakes homemade all-bran rusks for her family. The recipe that she uses is shown below.

INGREDIENTS

Makes 30 rusks Baking time: 55 minutes

Saking time. 55 minutes

- 500 g butter
- 370 g sugar
- 500 ml buttermilk
- 1 ml lemon juice
- 3 large free-range eggs
- 1 kg flour
- 2 t baking powder
- 1 t salt
- 240 g all-bran wheat flakes
- 100 g oats (uncooked)
- 100 g pecan nuts or almonds

The oven should be heated to 180 °C.

Study the recipe above and answer the questions that follow.

- 1.3.1 How many grams of all-bran wheat flakes are needed for this recipe?
- 1.3.2 Each batch of rusks needs to be baked for 55 minutes. The last batch was taken out at the time indicated on the watch alongside.

Convert 55 minutes to hours.



1.3.3 Write down the type of time format displayed on the watch. (2)
1.3.4 Write down the time indicated on the watch in 24-hour format. (2)

[30]

(2)

Downloaded from Stanmorephysics com MATHEMATICAL LITERACY

(PAPER 2) 10602/24

QUESTION

surrou	nding areas. The rest live in rural parts of the province.
The m inform	ap of the province is shown in ANNEXURE A. Use the map and the given nation to answer the following questions.
2.1.1	Write down the name of the town farthest to the south-west of Mafikeng as shown on the map.
2.1.2	Use a ruler to measure the distance (as the crow flies) from Lichtenburg to Taung. Give your answer in millimetres.
2.1.3	Use the scale on the map to calculate the actual distance in kilometres between Lichtenburg and Taung.
2.1.4	Determine the actual number of people living in rural parts of the province.
2.1.5	Convert the land area of the North West Province to the nearest km^2 given that 1 km = 0, 62137119 miles.
2.1.6	Calculate the population density of the North West Province in people/km ² .
	You may use the following formula:

Population density = <u>Population</u> Area



(3)

2.2 One of the activities to participate in while in the North West Province is to ride in the Aerial Cableway, located at Hartbeespoort.

Read the following information and answer the questions that follow.

- Each of the cable cars can carry 6 people.
 Each cable car travels at a maximum speed of 5 metres/second.
 It takes a cable car 5 minutes to reach the top of the Magaliesburg Mountains.
 A cable car goes to the top of the mountain every 7 minutes.
 The maximum weight of passengers tombhat, a cable car can carry is 480 kg.
 - 2.2.1 A tourist is 30th in the queue waiting to go to the top of the mountain. At what time will she reach the top of the mountain if the first group in the queue boards the cable car at 09:43?

Assume that there is only one cable car operating on that day, and it is filled to capacity for each trip.

2.2.2 Calculate the distance in metres, travelled by a cable car to transport people to the top of the mountain.

You may use the following formula: Average Speed = Distance



(6)

(4) [27]

Downloaded from Stanmorephysics GOMCAL LITERACY (PAPER 2) 10602/24

8

QUESTION 3

3.1

Mrs. Masenya gave birth to twins, a boy and a girl. She monitored their weight over the first six months and summarised it as shown in the table below.

Table 1: Weight of babies over 6 months

	Birth	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
				Weig	ht (kg)	Charles Ser	
Boy	3,6	4,6	5,7	6,4	7,0	7,5	8,0
Girl	3,2	4,2	5,1	5,9	6,4	6,9	7,4

Use the information in Table 1 above and the growth chart shown in ANNEXURE B to determine which descriptions correctly represent the twins' growth over six months.

Write down the question numbers (3.1.1 to 3.1.5) followed by TRUE or FALSE. If FALSE, correct the statement.

The baby girl lay in the 10th percentile when she was born. 3.1.1 (2)3.1.2 When the baby boy was 3 months old, only 10% of other baby boys were heavier than he was. (2)3.1.3 At the time the twins were 6 months old, they both lay close to the 50th percentile. (2)At 4 months, both babies were developing at the same rate as the average growth 3.1.4 rate. (2)3.1.5 The baby boy's mass increased by a little more than 139% in the first six months of his life. (2) Downloaded from Stanmoreph MATHEMATICAL LITERACY (PAPER 2)

10602/24

3.2 Due to the increase in the size of his family, Mr Masenya decided to purchase a bigger geyser. The family purchased a 200-litre geyser, twice the size of their old geyser. A table showing the dimensions of standard horizontal round geysers is shown below.

CAPACITY	DIAMETER x LENGTH
50-litre	450 mm x 610 mm
100-litre	550 mm x 840 mm
150-litre	550 mm x 1 150 mm
200-litre	550 mm x 1 470 mm
250-litre	550 mm x 1 875 mm

Study the information given in Table 2 above and use it to answer the questions that follow.

- 3.2.1 Write down the dimensions of the old geyser.
- Calculate the circumference of the base of the new geyser. 3.2.2

You may use the following formula: Circumference of a circle = $\pi \times$ diameter, where $\pi = 3,142$

3.2.3 Mr Masenya claims that because the new geyser has twice the volume of the old geyser, the surface area of the new geyser will also be twice that of the old geyser. Verify whether his claim is correct.

You may use the following formula:

Length

Surface area of a closed geyser = $(2 \times \pi \times \text{radius}^2) + (2 \times \pi \times \text{radius} \times \text{length})$

where $\pi = 3.142$

Mr Masenya wanted to be sure that the stated capacity of the geysers is correct, so 3.2.4 he performed the following calculations:

OLD 100 & GEYSER

 $Volume = \pi \times radius^2 \times length$ $= \pi \times (550 \text{ mm})^2 \times 840 \text{ mm}$ $= 798 \ 278 \ 69,33 \ mm^3$ $= 79 827 869,33 \text{ cm}^3$ ≈ 79 828 f.

NOTE: $1\ 000\ cm^3 = 1\ titre$

Identify TWO possible errors that were made in the calculation above.

(8)

(4)P.T.O.

(2)

9

Dow	nloaded from Stanmoreph	Y <mark>SICS. COM</mark> MATHEMATICAI (PAPER 2)	LITERACY 10602/24	10
3.2.5	Calculate the capacity of the new 200 ℓ nearest litre.	geyser. Round-off yc	our answer to the	
	You may use the formula:			
	Volume = $\pi \times \text{radius}^2 \times \text{length}$			
	where: $\pi = 3,142$			
_	NOTE: 1 000 cm ³ = 1 litre			(4)

3.2.6 Should Mr Masenya be happy with the new geyser based on the capacity? Provide a reason to support your answer.



. (2)

[32]

QUESTION 4

4.1 The diagram below shows the deck plan of the MS Eden sailing ship. The MS Eden is a 35-metrelong sailing ship. Refer to the deck plan and answer the questions that follow.

Ship's dimens	ions:		
	Dimensions	Area	
	Saloon: 13 m x 4,75 m	area = $61m^2$	
	Platform: 4 m x 4,75 m	area = 19 m^2	
	Upper deck: 8 m x 4,8 m	area = 40 m^2	
MAIN DECK	STAURANT AREA 117 m ²		9 m
anmorephysics.co	WT UPPER DECK 8 m x 4,8 m		

[Adapted from https//www.small-cruise-ships.com/ship/ms-eden/]

Use the information given above to answer the questions that follow.

4.1.1 The width of the restaurant area is 5,5 m. Determine the approximate length of the restaurant area.

You may use the following formula:

Area of a rectangle = Length \times Width

4.1.2 A stronger railing needs to be installed around the perimeter of the upper deck. 36 metres of railing was purchased. Determine, showing all calculations, whether the 36 metres of railing is enough.

You may use the following formula:

Perimeter = 2 (Length + Width)



(3)

(3)

11

P.T.O.

- Downloaded from Stanmorephysicsecontrical LITERACY 1 (PAPER 2) 10602/24
- 4.1.3 Study the deck plan and the ship's dimensions as provided in the diagram.

Identify TWO calculation errors made in the ship's dimensions and correct them.

4.2 The upper deck needs to be packed with boxes of the following dimensions:

Length = 0,65 m

Width = 0,42 m

Height = 39,5 cm

The height of the upper deck is 0,9 m.

- 4.2.1 Determine the number of boxes that can be packed on the upper deck if the boxes are packed facing up, with length across the length and width across the width.
- 4.2.2 One of the passengers on the sailing ship stated that more than 300 boxes can be packed on the upper deck if the boxes are packed facing up, with length across the width and width across the length.

Verify this claim using appropriate calculations.

4.3 The total number of people on the sailing ship includes the following:

- 12 crew members made up of 5 males and 7 females
- 23 male passengers
- 31 female passengers
- 4.3.1 Write down the probability, as a percentage, that the passenger who commented in QUESTION 4.2.2, is a female. (3)
- 4.3.2 Determine the probability of randomly selecting a person on the sailing ship who is NOT a crew member. (3)
- 4.3.3 Explain the term *probability* in this context.

12

(3)

(6)

(2) [**32**]

(9)

QUESTION 5

- 5.1 Jongi travelled from Gqeberha to Polokwane on a vacation. ANNEXURE C shows the direct route from Gqeberha to Polokwane. Study the information given in ANNEXURE C and use it to answer the following questions.
 - 5.1.1 The direct flight distance from Gqeberha to Polokwane is given as 1 186 km. Determine the scale, to the nearest million, of the map in the form of 1 : ...

(5)

5.1.2 It takes about 13,5 hours of driving time to cover the road distance of 1 405 km from Gqeberha to Polokwane.

Determine the average speed for the trip. Round-off your answer to the nearest whole number.

You may use the following formula: Distance = Speed × Time

(4)

5.1.3 According to road safety regulations, a driver needs to rest for 15 minutes for every two hours of driving.

If Jongi rests as suggested, determine how long the journey will take him if the original estimated time of 13,5 hours did not include the resting time.

(6)



5.2 The diagrams below show a 2-door book cabinet and a list of the hardware needed for its assembly. The steps for assembling the book cabinet are provided in ANNEXURE D.



15

Study the steps given in ANNEXURE D carefully as well as the diagrams above and use them to answer the questions that follow:

- 5.2.1 Instructions for steps 1 and 2 are as follows:
- Step

Step 1: Fasten the front and bottom panels with the cam pins and cam locks. Assemble it upside down.

Step 2: Fasten the back panel to the bottom panel with the cam pins and cam locks.



- 5.2.3 Identify a tool that can be used to turn the cam pins and cam locks. (2)
- 5.2.4 The diagram below shows a 3-D view of the cabinet.
 - Length = 700 mm

Width = 350 mm

Height = 690 mm



Use the information given above to calculate the total surface area (in cm^2) of the outside of the bookcase, including the bottom part.

You may use the following formula: **Total Surface Area** $= 2(\text{length} \times \text{width}) + 2(\text{length} \times \text{height}) + 2(\text{width} \times \text{height})$ (4)

[29]

TOTAL: 150



PREPARATORY EXAMINATION



5 pages







	Downloaded f	rom St	t anmor eph	iysics.com
--	--------------	--------	-------------	------------

MATHEMATI	CAL LITERACY		3
(PAPER 2)	ADDENDUM	10602/24	



P.T.O.



P.T.O.

	MATHEMAT	ICAL LITERACY		5
	(PAPER 2)	ADDENDUM	10602/24	
ANNEXURE D				
QUESTION 5.2				

Special note: Location number of cam pin, cam lock and dowel holes may vary.



[Source: file:///C:/Users/Henry/Downloads/10871Cherry-Modular-Wall-UnitAI.pdf]

Tools needed:

- A Phillips screwdriver
- A helper



PREPARATORY EXAMINATION



MARKING GUIDELINES

Stanmorephysics.com

MATHEMATICAL LITERACY (PAPER 2) (10602)

9 pages

CODES	EXPLANATION
Μ	Method
MA	Method with accuracy
CA	Consistent accuracy
Α	Accuracy
С	Conversion
D	Define
J	Justification/Reason/Explain
S	Simplification
RT/RD/RG	Reading from a table/graph/diagram/map/plan
F	Choosing the correct formula
SF	Correct substitution in a formula
0	Opinion
Р	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off/omitting units

KEY TO TOPIC SYMBOLS:

M = Measurement; MP = Maps, Plans and other representations; P = Probability

QUE	QUESTION 1 ANSWER ONLY FULL MARKS (30)				
Q	Answ	er	Explanation	Topic Level	Mark
1.1	1.1.1	R60 ✓ ✓ RG	2RG reading from the map	MP1	2
	1.1.2	West OR Westerly OR W ✓ ✓ RG	2RG reading from the map Accept SW	MP1	2
	1.1.3	Checkers Robertson ✓ RG Superspar Robertson ✓ RG	2RG reading from the map	MP1	2
	1.1.4	Robertson High School ✓✓ 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 ✓ ✓ RG	2RG reading from the map	MP1	2
1.2	1.2.1	$4 \checkmark \checkmark \text{RD OR}$ four	2RD reading from the diagram	MP1	2
	1.2.2	2 OR Two ✓✓ RD	2RD reading from the diagram	MP1	2
	1.2.3	Doors (Including sliding doors) : Windows $10: 10 \checkmark A$ $1: 1 \checkmark A$	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 m ²	M1	2
	1.3.1	240 g ✓ ✓ A	2A answer	M1	2
	1.3.2	$55 \div 60 \checkmark MA$ = 0,92 hours \sigma A	1MA dividing by 60 1A simplification	M1	
			NPR		2

10602/24

1.3416.30 $\checkmark \checkmark$ A2A correct timeM10R04:302004:30100QAnswer(27 marks)QAnswerExplanationLevel2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122226 mm $\checkmark \land$ A2A measurementMP122.1.266 mm $\checkmark \checkmark \land$ A2A measurementMP122.1.3Bar scale 80 km = 26 mm $\checkmark \land$ A2A measurementMP122.1.4Bar scale 80 km = 26 mm $\checkmark \land$ A1A bar measurementsMP3Actual distance = 66 mm $\checkmark \land$ A1A tara measurementsMP31A tara measurements1Mark26 mm $\checkmark \land$ A1A tara measurementsMP322.1.4Rural arcas = 100% - 3.6% =96.4% \checkmark MA1S simplification96.4% \checkmark A 100 000 \checkmark S1A number of people396.4% \checkmark A 100 000 \checkmark S2S simplificationA22.1.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM32.1.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM32.1.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM32.1.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM32.1.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM32.1.5(1 km) ² = (0, 62137119 miles) ² 1C dividing by conversation factor2.1.5(1 km) ² = 104 881 56811MCA dividing by conversation factor <th></th> <th>1.3.3</th> <th>Analogue ✓ ✓ A</th> <th>2A correct type</th> <th>M1</th> <th>2</th>		1.3.3	Analogue ✓ ✓ A	2A correct type	M1	2
I.3.416:30 \checkmark A2A correct timeM1OR211OR21QAnswerExplanationTopic LevelQAnswerExplanationTopic Level2.12.1.1Kuruman \checkmark RD2RD correct townMP12.1.266 mm \checkmark A2A measurementMP12.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm \times 80 km \checkmark M 26 mm \checkmark MCA from 2.1.2 1 A bar measurements 1 A bar measurements 1 A bar measurements 1 M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm \sim 72 mm NPRMP322.1.4Rural arcas = 100% - 3.6% = 96.4 x 4.1 million \checkmark S 1001MA subtracting % 1S SimplificationMP322.1.4Rural arcas = 100% - 3.6% = 96.4 x 4.1 million \checkmark S 1001A number of people322.1.5(1 km) ² = (0, 62137119 miles) ² 1 km ² = 0.38610216 miles ² \checkmark C Area of North-West in km ² = 40.495 miles ² \checkmark MCA 0.33610216 miles ² \checkmark CCIMCA dividing by conversation factor					2.64	
OR 04:302QAnswer(27 marks)QAnswerExplanation2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct town2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct town2.1.266 mm $\checkmark \checkmark$ A2A measurement2.1.3Bar scale 80 km = 26 mm \checkmark A2A measurementActual distance = $66 \text{ mm} \times 80 \text{ km} \checkmark$ MCA from 2.1.22.1.3Bar scale 80 km = 26 mm \checkmark A1A bar measurementsMile203,08 km \checkmark CACA from 2.1.21 A bar measurementsMP32 CA catual distance26 mm $\times 80 \text{ km} \checkmark$ M2 CA from 2.1.21A bar measurements1 M vide by 261M multiply by 801CA actual distanceAccept 26 mm -27 mm $Accept 26 mm - 27 \text{ mm}$ A $PG, 4\% \checkmark$ MA1MA subtracting % $96, 4\% \checkmark$ MA1S Simplification $96, 4\% \checkmark$ MA2S Simplification $96, 4\% \land$ 1100 000 \checkmark S100A $= 3.952.400$ people \checkmark A1A number of people3 A $= 3.952.4 \checkmark$ million people1A number of people3 $2.1.5$ $(1 \text{ km}^2 = 0.38610216 \text{ miles}^2 ~ C)AAAAAAAAAAAAAAAAAAAA$		1.3.4	16:30 ✓ ✓ A	2A correct time	MI	
QQUESTION 2(27 marks)QAnswerExplanationTopic2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP12.12.1.266 mm $\checkmark \checkmark$ A2A measurementMP12.1.3Bar scale 80 km = 26 mm \checkmark A2A measurementMP122.1.3Bar scale 80 km = 26 mm \checkmark A2A measurementsMP32Actual distance = 66 mm \times 80 km26 mini \checkmark MIA bar measurementsMP322.1.4Rural areas = 100% - 3,6% =96,4% \checkmark MASimplificationMP322.1.4Rural areas = 100% - 3,6% =1MA subtracting %MP3396,4% \checkmark MA1S SimplificationMP3396,4 x 4,1 million $\checkmark \checkmark$ S1S SimplificationMP340A1A number of people33952 400 people \checkmark A1A number of people340A1A number of people321.5(1 km) ² = (0, 62137119 miles) ² 1C to squaresM34Area of North-West in km ² 40.495 miles ² \checkmark MCA1MCA dividing by0, 38610216 miles ² 1MCA1MCA dividing byconversation factor		Щ	OR			
04:302[30]QUESTION 2(27 marks)QAnswerExplanationTopic Level2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark$ A2A measurementMP12.1.3Bar scale 80 km = 26 mm \checkmark A2A measurementMP1Actual distance = 66 mm \checkmark 80 km \checkmark MCA from 2.1.2MP32Actual distance = 66 mm \checkmark 80 km \checkmark MCA from 2.1.2MP32IA datual distance = 66 mm \checkmark 80 km \checkmark MCA from 2.1.2MP32IA crual distance = 66 mm \checkmark 80 km \checkmark MCA from 2.1.2MP32IA crual distance = 66 mm \checkmark 80 km \checkmark MIA subtracting $\%$ MP32203,08 km \checkmark CAIMA subtracting $\%$ MP32100IA number of peopleA20.4 $\%$ \checkmark MASimplificationMP396,4 $\%$ \checkmark A1100 m IA number of people320.4 $\%$ \checkmark 0.38610216 miles ² \checkmark CIC to squaresM31 $Lim^2 = 0.38610216$ miles ² \checkmark CIMCA dividing by conversation factorM3		<u>ION</u>	nT			
Q Answer(27 marks)QAnswerExplanationTopic LevelMark Level2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark$ A2A measurementMP122.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm \times 80 km \checkmark M 26 mm \checkmark MCA from 2.1.2 I A bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 26 mm - 27 mm NPRMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.5(1 km) ² = (0, 62137119 miles) ² I km ² = 0.38610216 miles ² \checkmark C Area of North-West in km ² = 40.495 miles ² \checkmark MCA 0.38610216 miles ² \checkmark MCA 0.38610216 miles ² \checkmark MCA 0.38610216 miles ² IMCA dividing by conversation factorM3		Inn	04:30			2
QUESTION 2(27 marks)QAnswerExplanationTopic LevelMark Level2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark$ A2A measurementMP122.1.3Bar scale 80 km $= 26$ mm \checkmark A Actual distance $= 66$ mm \times 80 km \checkmark M 26 mm \checkmark MCA from 2.1.2 I A bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 26 mm $= 27$ mm NPRMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIA number of people32.1.5(1 km) ² = (0, 62137119 miles) ² 1 km ² = 0.38610216 miles ² \checkmark C Area of North-West in km ² $= 40495 miles2 \checkmark MCA0,38610216 miles2 \checkmark CAIMCA dividing byconversation factor$			ų.			[30]
QAnswerExplanationTopic LevelMark Level2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark$ A2A measurementMP122.1.3Bar scale 80 km $= 26$ mm \checkmark A Actual distance $= 66$ mm \times 80 km \checkmark A actual distance $= 66$ mm \times 80 km \checkmark MCA from 2.1.2 1 A bar measurements 1M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm $- 27$ mm NPRMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIMA subtracting % 1S Simplification 1A number of peopleMP32.1.4Rural areas = 100% - 3.6% = 96.4% \checkmark MAIA number of people 1A number of peopleMP32.1.5(1 km) ² = (0, 62137119 miles) ² 1 km ² = 0.38610216 miles ² \checkmark C Area of North-West in km ² $= 40495$ miles ² \checkmark MCA 0.38610216 miles ² \land MCA 0.38610216 miles ² \checkmark MCA<	OUE	STION	2		(27	marks)
LevelLevel2.12.1.1Kuruman $\checkmark \land$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark \land$ A2A measurementMP12.1.3Bar scale 80 km = 26 mm $\checkmark \land$ AAccept 64 mm - 66 mm22.1.3Bar scale 80 km = 26 mm $\checkmark \land$ AAccept 64 mm - 66 mm22.1.4Bar scale 80 km < 2.6 mm $\checkmark \land$ AIA bar measurementsMP3accept 26 mm $\checkmark \land$ CAIM multiply by 80ICA actual distanceAccept 26 mm - 27 mmaccept 26 mm - 27 mmNPR42.1.4Rural areas = 100% - 3,6% =IMA subtracting %MP396,4% \checkmark MAIS SimplificationIS Simplification96,4 x 4.1 million $\checkmark \checkmark$ SIA number of people30AIA number of people32.1.5(1 km) ² = (0, 62137119 miles) ² IC to squaresM31 km ² = 0.38610216 miles ² \checkmark CIMCA dividing by conversation factorM3	Q	AnswerExplanation				Mark
2.12.1.1Kuruman $\checkmark \checkmark$ RD2RD correct townMP122.1.266 mm $\checkmark \checkmark \land$ 2A measurementMP122.1.3Bar scale 80 km = 26 mm $\checkmark \land$ Accept 64 mm - 66 mm22.1.3Bar scale 80 km = 26 mm $\checkmark \land$ Accept 64 mm - 66 mm22.1.4Bar scale 80 km = 26 mm $\checkmark \land$ CA from 2.1.2MP3 $= 203,08 km \checkmark CAIA bar measurementsMP3IA bar measurementsMMultiply by 80ICA actual distanceAccept 26 mm - 27 mmA= 203,08 km \checkmark CAIMA subtracting %MP3= 3,952 400 people \checkmark AIA number of peopleA= 3,952 400 people \checkmark AIA number of people3= 3,952 4\checkmark million peopleIA number of people3= 2.1.5(1 km)^2 = (0, 62137119 miles)^2IC to squaresM3= 40.495 miles^2 \checkmark MCA0,38610216 miles^2 \checkmark CIMCA dividing byconversation factorM3$					Level	
2.1.266 mm $\checkmark \checkmark$ A2A measurementMP1Accept 64 mm - 66 mm22.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm \checkmark 80 km \checkmark M 26 mm \checkmark MCA from 2.1.2 IA bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 26 mm - 27 mm NPRMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIA number of people32.1.5(1 km)² = (0, 62137119 miles)² 1 km² = 0,38610216 miles² \checkmark C Area of North-West in km² = 40 495 miles² \checkmark MCA 0,38610216 miles²IC to squaresM32.1.5(1 km)² = (0, 62137119 miles)² 1 km² = 0,38610216 miles² \checkmark CIMCA dividing by conversation factorM3	2.1	2.1.1	Kuruman ✓ ✓ RD	2RD correct town	MP1	2
2.1.200 lml \checkmark A2A measurementMr1Accept 64 mm - 66 mm22.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm \checkmark B0 km \checkmark A 26 mm \checkmark MCA from 2.1.2 IA bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 26 mm - 27 mm NPRMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIA number of people40a 96,4% \checkmark MAIA number of people32.1.5(1 km)² = (0, 62137119 miles)² 1 km² = 0,38610216 miles² \checkmark C Area of North-West in km² = 40 495 miles² \checkmark MCA 0,38610216 miles²IMCA dividing by conversation factorM3		212	66 mm d d A	2A magguramant	MD1	
Accept 64 mm - 66 mm22.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm × 80 km \checkmark MCA from 2.1.2 IA bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 26 mm - 27 mm NPRMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.5 $(1 km)^2 = (0, 62137119 miles)^2$ I km² = 0,38610216 miles² \checkmark CIA number of people32.1.5 $(1 km)^2 = (0, 62137119 miles)^2$ I km² = 0,38610216 miles² \checkmark CIC to squaresM32.1.4Accept 26 miles² ParticipationIMA subtractionMP33IA number of people3		2.1.2		2A measurement	INIP I	
2.1.3Bar scale 80 km = 26 mm \checkmark A Actual distance = 66 mm \times 80 km \checkmark M 26 mm \checkmark M 26 mm \checkmark MCA from 2.1.2 IA bar measurements IM divide by 26 IM multiply by 80 ICA actual distance Accept 27 mm NPRMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MAIMA subtracting % IS SimplificationMP32.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0, 38610216 \text{ miles}^2 \checkmark CArea of North-West in km²= 40.495 \text{ miles}^2 < MCA0, 38610216 \text{ miles}^2IC to squaresM3MP3M3IMCA dividing byconversation factorIMCA dividing byconversation factorM3$				Accept 64 mm – 66 mm		2
2.1.3Datistate of kin - 20 min - 80 km \checkmark M 26 min - M 26 min - MCA Hold 212 a measurements 1M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm - 27 mm NPR42.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $96,4 \times 4$ 100 000 \checkmark S 1001A number of peopleMP3 $96,4 \times 4,1$ million \checkmark S 1001A number of people3 $96,4 \times 4,1$ million \checkmark S 1002S Simplification3 $96,4 \times 4,1$ million \checkmark S 1001A number of people3 $2.1.5$ $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3 $40.495 \text{ miles}^2 \checkmark$ MCA $0,38610216 \text{ miles}^2$ 1MCA dividing by conversation factor1MCA dividing by conversation factor		213	Bar scale $80 \text{ km} = 26 \text{ mm} \sqrt{4}$	CA from 212	MP3	
26 mm \checkmark M scorr1M divide by 26 1M multiply by 80 1CA actual distance Accept 26 mm - 27 mm NPR42.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $\frac{96.4}{100}$ $\frac{96.4}{100}$ $\frac{96.4}{100}$ MP3 $= 3.952.400$ people \checkmark A1A number of people3 $\frac{96.4}{100}$ $\frac{96.4}{100}$ $\frac{1}{100}$ 1A number of people $= 3.952.400$ people \checkmark A1A number of people3 $2.1.5$ $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0, 38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3 $2.1.5$ $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0, 38610216 \text{ miles}^2 \checkmark C$ 1MCA dividing by conversation factor1MCA dividing by conversation factor		2.1.5	Actual distance = $66 \text{ mm} \times 80 \text{ km} \checkmark \text{M}$	1A bar measurements	IVII 5	
$= 203,08 \text{ km} \checkmark CA$ 1M multiply by 80 1CA actual distance Accept 26 mm - 27 mm NPR42.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $\frac{96,4}{100}$ $3,6\% =$ 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $= 3.952.400$ people \checkmark A1A number of peopleA $\frac{96,4}{100}$ 4 2S Simplification3 $\frac{96,4}{100}$ 4 1A number of people3 $2.1.5$ $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C1C to squaresM32.1.5(1 \text{ km})^2 = (0, 62137119 \text{ miles})^21 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C1MCA dividing byconversation factor4.0495 \text{ miles}^21MCA1MCA dividing byconversation factor$			26 mm M S.com	1M divide by 26		
ICA actual distance Accept 26 mm - 27 mm42.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $2.1.4$ Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $2.1.4$ Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $2.1.4$ Rural areas = 100% - 3,6% = 96,4% \checkmark MA1A number of peopleMP3 a a a 1A number of people a b a <t< td=""><td></td><td></td><td>= 203,08 km ✓ CA</td><td>1M multiply by 80</td><td></td><td></td></t<>			= 203,08 km ✓ CA	1M multiply by 80		
Accept 26 mm - 27 mm NPR42.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $96,4\% \checkmark MA$ 1S Simplification1S Simplification $96,4\% \checkmark 4 100 000 \checkmark S$ 1001A number of people0R $96,4 \times 4, 1 million \checkmark \checkmark S$ 1002S Simplification3 $96,4 \times 4, 1 million \checkmark \checkmark S$ 1002S Simplification3 $0R$ $= 3,9524 \checkmark$ million people1A number of people3 A $= 3,9524 \checkmark$ million people1A number of people3 $2.1.5$ $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3 A $= 40.495 \text{ miles}^2 \checkmark MCA$ $0,38610216 \text{ miles}^2$ 1MCA dividing by conversation factor1MCA dividing by conversation factor				1CA actual distance		
Image: Next A constraints of the constraint of the constraints of the co				Accept 26 mm $- 27$ mm		4
2.1.4Rural areas = 100% - 3,6% = 96,4% \checkmark MA1MA subtracting % 1S SimplificationMP3 $96,4\% \checkmark$ MA1S Simplification1S Simplification $96,4\% \checkmark$ MA1A number of people0R $= 3 952 400$ people \checkmark A1A number of peopleOR2S Simplification $96,4 \times 4,1$ million $\checkmark \checkmark$ S2S Simplification 100 A $= 3,9524 \checkmark$ million people1A number of people 3 32.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ Area of North-West in km² $= \frac{40.495 \text{ miles}^2}{0,38610216 \text{ miles}^2}$ 1MCA dividing by conversation factor $104 881 5681$						<u>т</u>
96,4% \checkmark MA1S Simplification96,4 x 4 100 000 \checkmark S1A number of people= 3 952 400 people \checkmark A1A number of peopleOR2S Simplification96,4 x 4,1 million $\checkmark \checkmark$ S2S Simplification100A= 3,9524 \checkmark million people1A number of people2.1.5(1 km) ² = (0, 62137119 miles) ² 1 km ² = 0,38610216 miles ² \checkmark CIC to squaresArea of North-West in km ² 1MCA dividing by conversation factor= 104 881 56811MCA dividing by conversation factor		2.1.4	Rural areas = 100% - 3,6% =	1MA subtracting %	MP3	
$96.4 \times 4 \ 100\ 000 \checkmark S$ IS Simplification $= 3\ 952\ 400\ \text{people} \checkmark A$ 1A number of people OR 1A number of people $96.4 \times 4.1\ \text{million} \checkmark \checkmark S$ 2S Simplification $96.4 \times 4.1\ \text{million} \checkmark \checkmark S$ 2S Simplification 100 A $= 3.9524 \checkmark \text{million}\ \text{people}$ 1A number of people 3 1A number of people $2.1.5$ $(1\ \text{km})^2 = (0,\ 62137119\ \text{miles})^2$ 1C to squares $1\ \text{km}^2 = 0.38610216\ \text{miles}^2 \checkmark \text{C}$ M3 $40\ 495\ \text{miles}^2$ $\checkmark \text{MCA}$ 1MCA dividing by conversation factor $= 104\ 881\ 5681$ 1MCA dividing by conversation factor			96,4% ✓ MA			
$90.4 \times 4 \ 100\ 000\ \sqrt{3}$ 1A number of people $= 3\ 952\ 400\ people\ \sqrt{A}$ 1A number of people OR 2S Simplification $96.4 \times 4, 1\ million\ \sqrt{\sqrt{S}}$ 2S Simplification A $= 3,9524\ \sqrt{million\ people}$ 1A number of people A $= 3,9524\ \sqrt{million\ people}$ 1A number of people $2.1.5$ $(1\ km)^2 = (0,62137119\ miles)^2$ 1C to squares $1\ km^2 = 0,38610216\ miles^2\ \sqrt{C}$ Area of North-West in km^2 $= \frac{40\ 495\ miles^2\ \sqrt{MCA}}{0,38610216\ miles^2}\ \sqrt{MCA}$ 1MCA dividing by conversation factor			$06.4 \times 4.100.000 \times 5$	1S Simplification		
Image: a set of a structureImage: a set of a set			<u>90,4</u> X 4 100 000 ¥ 3			
= 3 952 400 people \checkmark AIA number of peopleOR2S Simplification $\frac{96,4}{100}$ x 4,1 million $\checkmark \checkmark$ S2S SimplificationA= 3,9524 \checkmark million people1A number of people2.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ 1C to squares $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark \text{ C}$ Area of North-West in km² $= \frac{40.495 \text{ miles}^2}{0,38610216 \text{ miles}^2} \checkmark \text{ MCA}$ 1MCA dividing by conversation factor $= 104.881.5681$ 1MCA dividing by conversation factor						
OR2S Simplification $96.4 \times 4,1$ million $\checkmark \checkmark S$ 2S SimplificationA $3.9524 \checkmark$ million people1A number of people2.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ 1C to squares $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ Area of North-West in km² $= 40.495 \text{ miles}^2 \checkmark MCA$ 1MCA dividing by conversation factor $= 104.881.5681$			= 3 952 400 people ✓ A	IA number of people		
OK2S Simplification $96,4 \ge 4,1 \text{ million } \checkmark \checkmark S$ 2S SimplificationA $= 3,9524 \checkmark \text{ million people}$ 1A number of people2.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ 1C to squares $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3Area of North-West in km² $= 40.495 \text{ miles}^2 \checkmark \text{ MCA}$ 1MCA dividing by conversation factor $= 104.881.5681$ 1MCA dividing by conversation factor			OP			
$96.4 \ge 4.1 \mod \sqrt{\sqrt{S}}$ 2S SimplificationA = 3,9524 $\sqrt{\mmode million\ people}$ 1A number of people2.1.5 $(1 \ {\rm km})^2 = (0, 62137119 \ {\rm miles})^2$ $1 \ {\rm km}^2 = 0,38610216 \ {\rm miles}^2 \sqrt{C}$ 1C to squaresArea of North-West in ${\rm km}^2$ $= 40 \ 495 \ {\rm miles}^2 \sqrt{MCA}$ $0,38610216 \ {\rm miles}^2$ 1MCA dividing by conversation factor			UK			
100 A = 3,9524 \checkmark million people1A number of people32.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3Area of North-West in km² $= 40.495 \text{ miles}^2 \checkmark \text{ MCA}$ $0,38610216 \text{ miles}^2$ 1MCA dividing by conversation factor			<u>96,4</u> x 4,1 million ✓ ✓ S	2S Simplification		
A = 3,9524 \checkmark million people1A number of people32.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ $1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ 1C to squaresM3Area of North-West in km² $= \frac{40 \ 495 \ \text{miles}^2} \checkmark \text{MCA}$ $0,38610216 \ \text{miles}^2$ 1MCA dividing by conversation factor			100	Inna		
2.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ 1C to squares M3 1 km² = 0,38610216 miles² ✓ C Area of North-West in km² M3 = 40 495 miles² ✓ MCA 1MCA dividing by IMCA dividing by 0,38610216 miles² 1MCA dividing by IMCA dividing by			A -3.0524 × million people	1A number of people		3
2.1.5 $(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$ 1C to squares M3 1 km² = 0,38610216 miles² ✓ C Area of North-West in km² M3 = $40 495 \text{ miles}^2$ ✓ MCA 1MCA dividing by conversation factor = 104 881 5681 104 881 5681						5
$1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark C$ Area of North-West in km² $= \frac{40 \ 495 \ \text{miles}^2} \checkmark \text{MCA}$ $0,38610216 \ \text{miles}^2$ 1MCA dividing by conversation factor		2.1.5	$(1 \text{ km})^2 = (0, 62137119 \text{ miles})^2$	1C to squares	M3	
Area of North-West in km² = $\frac{40\ 495\ \text{miles}^2}{0,38610216\ \text{miles}^2}$ 1MCA dividing by conversation factor			$1 \text{ km}^2 = 0,38610216 \text{ miles}^2 \checkmark \text{C}$			
$= \frac{40 \ 495 \ \text{miles}^2}{0,38610216 \ \text{miles}^2} \qquad \qquad \text{IMCA dividing by}$ = 104 881 5681			Area of North-West in km^2			
$\begin{bmatrix} 0,38610216 \text{ miles}^2 \\ = 104\ 881\ 5681 \end{bmatrix}$ 1MCA dividing by conversation factor			$= 40495 \text{ miles}^2 \checkmark \text{MCA}$			
= 104 881 5681			$0.38610216 \text{ miles}^2$	1MCA dividing by		
= 104.881.5681				conversation factor		
			= 104881,5681	1CA rounded area		
$= 104 882 \text{ km}^2 \checkmark \text{CA}$			$= 104 882 \text{ km}^2 \checkmark \text{CA}$			3

2.1.6	Population of North-West = 4 100 000	CA from 2.1.5	MP2	
6	Population density			
	$=$ <u>4 100 000</u> people \checkmark SF	1SF substituting values		
	$104\ 882\ \mathrm{km^2}$	1CA population density		
	= 39,091 people/km ² \checkmark CA	1 Rounding		
Inn	\approx 39 people/km ² \checkmark R			3



10602/24

2.2	2.2.1	Number of trips = $30 \div 6 \checkmark M$	1M dividing values	M3	
	10	= 5 in the row \checkmark S	1S simplifying		
		a de la companya de la			
		Every 7 minutes = 5×7 minutes $\checkmark M$	1M multiply		
	IUU	$= 35 \text{ minutes } \checkmark \text{S}$	1S time		
		Time to reach the top = $9:43 +$	1MA adding		
		35 minutes ✓ MA	1CA arrival time		
	-	10:18 am CAephysics.com			6
	2.2.2	Time	1C conversion	M2	
		$= 5 \min \times 60$	1A changing the subject		
		$= 3.00 \text{ sec } \checkmark \text{C}$	of the formula		
		Distance = speed × time \checkmark A	1SF substituting values		
		$= 5 \text{ m/s x } 300 \text{ sec } \checkmark \text{ SF}$	1CA answer		
		= 1 500 meters \checkmark CA			4
					[27]

QUE	QUESTION 3 (32 marks)				
Q	Answer		Explanation	Topic Level	Mark
3.1	$\begin{array}{c c} 3.1.1 & \text{FALSE} \checkmark \text{A, she lay on the 50} \\ \text{percentile.} \checkmark \text{J} \end{array}$	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 ✓ ✓ A	20 correct answer	M4	2
	3.1.4	TRUE $\checkmark \checkmark \land$ A OR FALSE $\checkmark \land$ 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 = $3,142 \times 550 \text{ mm} \checkmark \text{SF}$ = 1 728,10 mm $\checkmark \text{A}$	1SF substitution 1A answer NPR	M2	2

3.2.3	100 ℓ OLD GEYSER:		M4	
	Surface area			
luu	$r = 550 \text{ mm} \div 2$	1M for radius		
	$= 2/5 \checkmark M$ (2 \to 2 142 \to 275 ²) \to (2 \to 2 142 \to 275 \to 3	IM substitution of values		
Щ	$= (2 \times 3, 142 \times 2/5^{-}) + (2 \times 3, 142 \times 2/5 \times 2/5) + (2 \times 3, 142 \times 2/5 \times 2/5) + (2 \times 3, 142 \times 2/5) \times 2/5 $	1CA anguyan		
Inno	$-475 227 5 \pm 1.451 604$	ICA answer		
	$-1.926.831.5 \text{ mm}^2 \checkmark C.4$			
 l	- 1 920 851,5 mm · OA			
	200ℓNEW GEYSER			
	Surface area			
	$= 2 \times \pi \times r^2 + 2 \times \pi \times r \times \ell$	1M substitution of values		
	$=(2 \times 3.142 \times 275^2) + (2 \times 3.142 \times 275 \times 275^2)$			
	1470) √ M			
	= 475 227,5 + 2 540 307	104		
	$= 3.015.534,5 \text{ mm}^2 \checkmark \text{CA}$	ICA answer		
		1MCA dividing by 2		
	$=$ <u>3 015 534,5 mm</u> ² \checkmark MCA	TWICA dividing by 2		
	2	1CA correct answer		
	$= 1507767,25 \text{ mm}^2 \checkmark \text{CA}$			
	Therefore, Mr Masenya's claim is not	10 conclusion		0
	correct ✓ U			8
224	First among the diameter was used instead	20 finat annon	N/ 4	
5.2.4	First error: the diameter was used instead of dividing by 2 to get the radius $\sqrt{2}$	20 first erfor	1014	
	of dividing by 2 to get the fadius. ••• O			
	Second error: the conversion from mm^3 to			
	cm^3 was done incorrectly. Thus, it was	20 second error		
	divided by 10 instead of 10^3 or 1000 . $\checkmark \checkmark 0$			
	OR			
	Did not use 3,142 value of pi in the			
	calculation.			4
		P		
3.2.5	$3,142 \times 275^2 \times 1470 \text{ mm} \checkmark \text{SF}$	1SF substituting values	M3	
	$= 349\ 292\ 212,5\ \mathrm{mm}^3 \div 1\ 000\ \checkmark\ \mathrm{C}$	1C converting to cm ³		
	$= 349\ 292,2125\ \mathrm{cm}^3 \div 1\ 000 \checkmark \mathrm{C}$	1C converting to litres		
	= 349,292 ℓ ✓ CA	1CA correct answer		4
		10001		
 326	Yes $\checkmark 0$ because he is getting more than	10 Yes or No	M4	
5.2.0	200 litres \checkmark I.	11 reasoning	141-4	
		10 reasoning		
	OR			
	No, because he is getting more than			
	200 litres which would potentially increase			
	his electricity bill.			2
				[32]

QUES	STION 4	4	(32 marks		
Q	Answe	er	Explanation	Topic Level	Mark
4.1	4.1.1	$117 \text{ m}^2 = \ell \text{ x } 5,5 \text{ m} \checkmark \text{SF}$ $\ell = \underline{117 \text{ m}^2} \checkmark \text{M}$ $5,5 \text{ m}$ $\ell = 21,27 \text{ m} \checkmark \text{A}$	1SF correct substitution 1M changing the subject of the formula 1A correct answer	M2	3
	4.1.2	$8 + 4,8 + 8 + 4,8 \checkmark MA$ = 25,6 m $\checkmark CA$ OR P = 2(8 + 4,8)	1MA adding all four values 1CA correct length	M4	
		= 25,6 m ∴ 36 m of railing will be enough ✓ O	10 conclusion		3
	4.1.3	The areas are not all calculated correctly. \checkmark J Saloon: 13 m x 4,75 m area = $61,75m^2 \checkmark A$ Upper deck: 8 m x 4,8 m area = $38,4m^2 \checkmark A$	1J identifying errors 2A fixing errors	M4	3
4.2	4.2.1	Height B = 39,5 cm/100 = 0,395 m \checkmark C Along the length of the deck Lengthwise = $\frac{8 \text{ m}}{0,65 \text{ m}}$ \checkmark M	1C converting height 1M dividing lengths	MP3	
		$= 12,3076 \checkmark CA$ $= 12 \text{ boxes } \checkmark R$ Widthwise $= \frac{4.8 \text{ m}}{0,42 \text{ m}} \checkmark M$ $= 11,4285$ $= 11 \text{ boxes } \checkmark CA$ Unight = 0.0 m	1CA correct answer 1R rounding down 1M dividing width 1CA whole boxes		
		Height = $\frac{0.9 \text{ m}}{0.395}$ = 2,278 = 2 boxes \checkmark CA Total boxes to be packed = 12 x 11 x 2 \checkmark MCA = 264 boxes \checkmark CA	1CA whole boxes 1MCA multiplying values 1CA total number of boxes		9

10602/24

	4.2.2	Length/widthwise = $\frac{8 \text{ m}}{0,42 \text{ m}}$		MP3	
		= 19,0476			
		= 19 boxes \checkmark M			
		Width/Lenghtwise = $\frac{4.8 \text{ m}}{0.65 \text{ m}}$	1M number of boxes		
		= 7,384615			
		= 7 boxes \checkmark M			
		Height = $\frac{0.9 \text{ m}}{0.395}$	1M number of boxes		
		= 2,278 boxes			
		= 2 boxes \checkmark M	1M number of boxes		
		Total boxes = $19 \times 7 \times 2 \checkmark$ MCA	1MCA multiplying all three values		
		= 266 boxes \checkmark CA	1CA answer		
		Therefore, the claim is invalid \checkmark O	10 conclusion		6
4.3	4.3.1	Number of people on the cruise ship = 66	1A numerator	P2	
		Probability of female passenger	1A denominator		
		$= \underbrace{31}_{66} \checkmark A \times 100$	1CA answer		
		= 46,97% ✓ CA	NPR		3
	4.3.2	Probability (not a crew member)	וחחח	P2	
		= 66 - 12	1M total number of people		
		= 54 ✓ M			
			1A numerator		
		$54 \checkmark A$			
		00 ¥ A	IA denominator		2
			AU		3
	433	Probability is the chance of picking a	2D explanation of	P1	
		particular person out of all the people on	probability		
		the sailing ship. $\checkmark \checkmark J$	- •		2
					[32]

QUESTION 5 (26 marks) 0 Answer Explanation Topic Mark Level 5.1 5.1.1 NOTE: use measurements from the MP3 printed copy. 1M ratio format 15 cm : 1 186 km ✓ M 1C converting to cm 15 cm : 118 600 000 ✓ C 1M simplifying 15 cm : 118 600 000 cm ✓ M 15 cm 15 cm 1CA scale in unit form 1 : 7 906 666.667 ✓ CA 1R scale in rounded form $\cong 1$: 8 000 000 \checkmark R 5 Speed = $1405 \text{ km} \checkmark M$ 5.1.2 2M substitution MP3 13,5 h 1A answer $= 104.074 \text{ km/h} \checkmark \text{A}$ 1R rounded answer $= 104 \text{ km/h} \checkmark \text{R}$ 4 $13,5 \div 2 \checkmark M = 6,75$ 1M dividing driving time 5.1.3 MP3 = 6 rests ✓ A (not 7, because Jongi 1A number of rests would have arrived at destination during the last rest). 1MCA calculating rest ✓ MCA time $\therefore 6 \times 15$ minutes 1CA total rest time = 90 minutes= 1 hour 30 minutes \checkmark CA ✓ MCA 1MCA addition of time \therefore Journey = 13 hours 30 minutes + 1 hour 30 minutes 1CA total travelling time = 15 hours \checkmark CA 6 5.2 5.2.1 Step 3: Attach left and right side 2A step 3 instructions MP2 panels $\checkmark \checkmark \mathbf{A}$ Step 4: Attach the top surface with cam 2A step 4 instructions locks, cam pins, and dowels. Then insert the four leveling glides $\checkmark \checkmark \mathbf{A}$ Step 5: Insert shelf pins into holes along 2A step 5 instructions the interior sides. Place the shelf on top of the pins. $\checkmark \checkmark \mathbf{A}$ **NOTE: Read what the candidate has** written and award marks if it makes sense 6

5.2.2	To assist with the assembling and lifting	2A reasoning	MP4	
	of parts. ✓ ✓ O			2
Щ				
5.2.3	Screwdriver ✓ ✓ A	2A tool	MP1	2
5.2.4	✓ M ✓ M	2M substitution	M3	
000	Total surface area = $2(700 \times 350)$			
<u>eeee</u>	$+2(700 \times 690) + 2(350 \times 690)$	1M simplification		
	$= 490\ 000 + 966\ 000 + 483\ 000 \checkmark M$			
	= 19 390	1CA answer in cm^2		
	$1939000\mathrm{mm^2} \div 10^2 = 19390$			
	$cm^2 \checkmark CA$			4
				[29]
			TOTAL:	150

