basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

NOVEMBER 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 15 pages and a SPECIAL ANSWER BOOK of 17 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.
2. Answer ALL the questions ONLY in the SPECIAL ANSWER BOOK provided.
3. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
4. Show ALL calculations clearly.
5. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
6. Indicate units of measurement, where applicable.
7. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
8. Write neatly and legibly.

QUESTION 1

1.1 TABLE 1 below contains a list of statements and definitions of concepts used in Mathematical Literacy.

TABLE 1: STATEMENTS AND DEFINITIONS OF CONCEPTS

LETTER	DEFINITIONS
A	The three-dimensional space that is occupied by a gas, liquid or solid substance
B	Visual representation of the exterior sides of a building
C	Diagram of a real-life object drawn to scale
D	The region covered by the shape or object
E	The result of speed, in km/h, multiplied by the time, in hours
F	Distance around the outside of a shape
G	Scale where one unit on the map represents 50 000 units in reality
H	Shows the design and dimensions of the inside of a building, viewed from the top
I	The area of all the faces of an object added together
J	The result of speed, in km/h, divided by the time, in hours

Use TABLE 1 above and match an explanation or a definition with EACH of the concepts below. Write only the letter (A–J) next to the question numbers (1.1.1 to 1.1.5), e.g. 1.1.6 K.

1.1.1 Elevation plan (2)

1.1.2 Number scale (2)

1.1.3 Volume (2)

1.1.4 Distance (2)

1.1.5 Perimeter (2)

1.2 Shown below is the information regarding a South African Airways flight from Cape Town to Johannesburg.

South African Airways
Wednesday 8 January 2025

Distance	**Aircraft**	**Codeshare**
1 278 km	Boeing 737-800	NZ 3120

Flight number: SA332

Maximum number of passengers: 189

Departure	**Arrival**
12:15 Cape Town	14:15 Johannesburg

[Adapted from https://www.flysaa.com]

Use the information above to answer the questions that follow.

1.2.1 State, in words, the arrival time of the flight using the 12-hour format. (2)

1.2.2 Only $33\frac{1}{3}$ % of the maximum number of passengers were on board this flight.

Calculate the number of passengers on this flight. (2)

1.2.3 Write down which ONE of the methods below is the CORRECT method to calculate the speed in km/h of the aircraft.

Write only the letter (A–C) next to the question number (1.2.3).

A $\frac{1\,278}{14:15}$

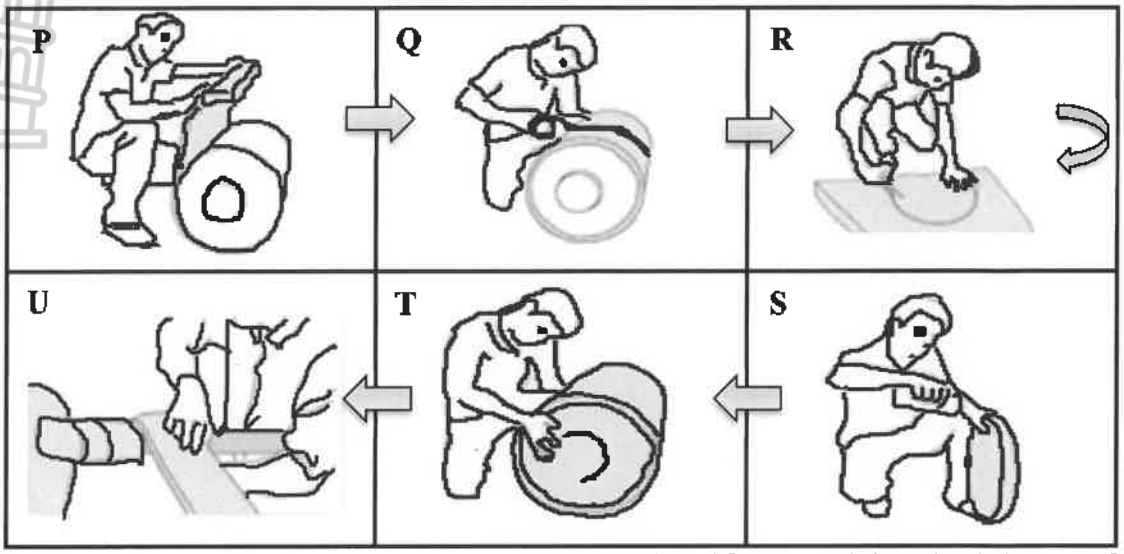
B $\frac{1\,278}{2}$

C $\frac{2}{1\,278}$ (2)

1.2.4 State which day of the week was 26 December 2024. (2)

1.3 One way to save money during winter is to wrap the geyser and waterpipes with a geyser blanket. A geyser blanket is made of aerolite which can easily be cut.

The pictures below show the steps to wrap the geyser in aerolite.



[Adapted from www.21homeinsulations.co.za]

NOTE: Aerolite is insulating material that allows heat to stay in an object.

Use the information above to answer the questions that follow.

1.3.1 Write down the letter (P–U) of the picture that matches EACH of the following statements:

(a) Cut out circles of the aerolite to be placed on both ends of the geyser.

(b) Apply glue to the circular pieces of the aerolite.

(c) The strips of aerolite are wrapped around the pipes.

(d) Roll the aerolite around the lateral surface of the geyser.

(e) Use duct tape to secure the aerolite around the lateral surface.

(f) Attach the circular pieces of the aerolite to the geyser. (6)

1.3.2 Choose ONE of the following formulae that can be used to calculate how much aerolite is needed for the total surface area of the geyser only.

Write only the letter (A–D) next to the question number (1.3.2).

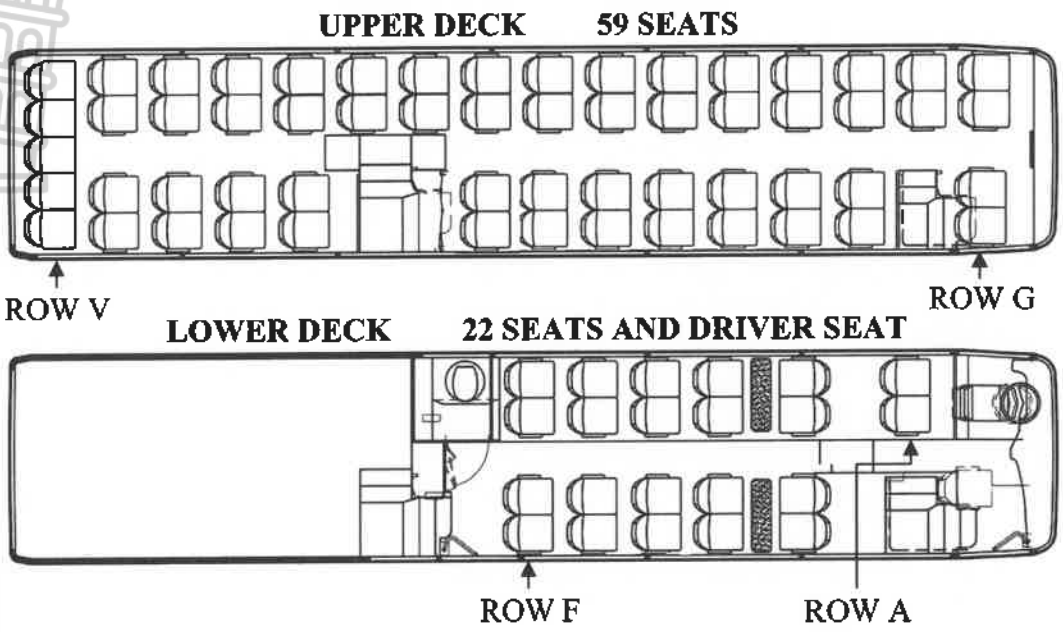
A $\pi \times \text{radius}^2 \times \text{height} + 2 \times \pi \times \text{radius}$
B $\pi \times \text{radius} \times \text{height} + \text{length} \times \text{width}$
C $2 \times \pi \times \text{radius} \times \text{height} + 2 \times \pi \times \text{radius}^2$
D $\frac{1}{2}\text{base} \times \text{height}$ (2)

1.3.3 The length of the geyser is 1,2 m. Convert this measurement to mm. (2)

[28]

QUESTION 2

2.1 The seating plan for a tourist bus that travels around Cape Town is shown below.



KEY

Driver seat		Forward-facing seat	
Toilet		Stairs	

[Adapted from www.venturebustours.com/seating]

Study the information above and answer the questions that follow.

2.1.1 Determine the number of forward-facing passenger seats on this bus. (2)

2.1.2 The seats are numbered according to the following numbering system:

- A to F is for the lower deck.
- G to V is for the upper deck.
- The seats are numbered 1 to 4 from right to left if you are facing the back of the bus.

Write down the seat number which has the easiest access to the toilet. (2)

2.1.3 Complete the following paragraph with the directions to move from seat C2 to seat J3 by using the words provided in the list below. Write only the word next to the question numbers (2.1.3(a) to 2.1.3(d)).

aisle; second; left; right; first

Move forward towards the front set of stairs on your (a) … Use this set of stairs to get to the upper deck. Once on the upper deck, turn (b) … and you will find your seat on the (c) … in the (d) … row from the stairs. (4)

2.2 ANNEXURE A in the ANSWER BOOK shows a route map of a round trip and the 18 stops made by a tour bus.

Use ANNEXURE A to answer the questions that follow.

2.2.1 Write down the name of the southern-most stop on this route. (2)

2.2.2 Name the type of scale used on this map. (2)

2.2.3 State whether the bus will be driving in a clockwise or an anticlockwise direction from stop 11 to stop 18. (2)

2.2.4 The distance of a round trip is 19,2 km.

Use the given scale on the map to determine the map distance. (5)

2.3 John lives in a flat in Cape Town. ANNEXURE B in the ANSWER BOOK shows the floor plans of two flats in John's block of flats. Flat 1 is on the ground floor and Flat 2 is on the first floor, which forms part of a block of flats.

Use ANNEXURE B to answer the questions that follow.

2.3.1 State whether the bathroom door opens to the (left/right) as you enter the bathroom. (2)

2.3.2 Convert the longer dimension of the living room to centimetres. (5)

2.3.3 Write down TWO differences between Flat 1 and Flat 2. (4)

2.3.4 Give ONE possible reason why Flat 1 does not have a balcony. (2)

2.3.5 Explain why there are no windows in the north- and south-facing walls of both plans. (2)

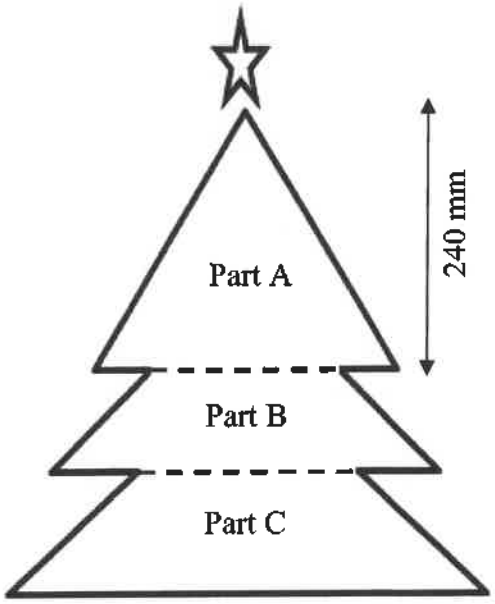
[34]

QUESTION 3

3.1 Mrs Xulu used different recycled materials to make a tree decoration to hang on the wall, as shown in the picture below. She cut out different coloured circles to form the tree pattern.

She made a tree-shaped template using cardboard to form the backing for the coloured circles to be pasted on.

The template was made up of three sections: Part A, Part B and Part C.

PICTURE OF TREE DECORATION	MEASUREMENTS OF CARDBOARD TEMPLATE
	

[Adapted from www.pinterest.com]

NOTE: Dimension of the base of the triangle in Part A = 28 cm

Use the information above to answer the questions that follow.

3.1.1 Mrs Xulu took 3 hours and 27 minutes without any break to cut out the circles. She finished at 13:12.

Determine the time at which Mrs Xulu started cutting out the circles. (2)

3.1.2 In Part A, there are seven rows of circles. The first row consists of one circle at the top and thereafter, each successive row has an additional circle added to complete the rest of the rows.

Calculate the total number of circles in Part A. (3)

3.1.3 Calculate, in cm², the area of Part A.

You may use the following formula:

Area of triangle $= \frac{1}{2}$ **base × height** (4)

3.1.4 The area of Part B is 30 240 mm². The area of Part C is 1,6 times the area of Part B.

Calculate, in mm², the total area of the cardboard template. (5)

3.1.5 Mrs Xulu placed all the coloured circles in a container as she cut them out.

TABLE 2 below shows the number of circles and the specific colours that Mrs Xulu cut out.

TABLE 2: NUMBER OF CIRCLES PER COLOUR

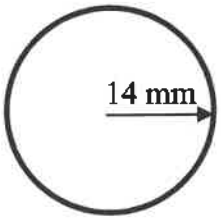
COLOUR OF CIRCLE	NUMBER OF CIRCLES
Red	9
Green	7
Gold	28
Dark denim	8
Mixed colour	22

Determine, as a percentage, the probability of randomly choosing a green circle or a red circle from the container. (4)

3.2 Amanda Xulu, Mrs Xulu's daughter, makes circular-shaped earrings. She sells these earrings at the local flea market.

The radius of the large circle in the picture below is 14 mm.

Shown below is a picture of a pair of earrings and a diagram showing the circles of one earring.

PICTURE OF A PAIR OF EARRINGS	DIAGRAM OF THE CIRCLES OF ONE EARRING
 **NOTE:** Synthetic – not real	**SMALL CIRCLE**  **LARGE CIRCLE**  [Adapted from www.pinterest.com]

Use the information above to answer the questions that follow.

3.2.1 Determine, in mm, the radius of the small circle if it is $\frac{4}{7}$ of the radius of the large circle. (2)

3.2.2 Calculate, rounded to the nearest mm, the circumference of the large circle.

You may use the following formula:

Circumference of circle = 3,142 × 2 × radius (3)

3.2.3 Amanda decides to make 48 pairs of earrings using flower-patterned synthetic leather for the large circles. Both sides of the large circle are covered using synthetic leather, while the small circle is painted black.

The radius of one large circle is 1,4 cm.

The synthetic leather is sold in rolls with a width of 1,37 m. Amanda buys 30 cm of the synthetic leather.

She states that after cutting the leather for ALL the large circles, the remaining synthetic leather will have an area of less than 3 000 cm².

Verify her statement, showing ALL calculations.

You may use the following formulae:

Area of rectangle = length × width

Area of circle = 3,142 × radius² (9)

[32]

QUESTION 4

4.1

A flamingo (bird) was fitted with a Global Positioning System (GPS) tracking device.

ANNEXURE C in the ANSWER BOOK shows the map with the tracked flight of the flamingo, starting at point A and ending at point E.

FLAMINGO

Use ANNEXURE C to answer the questions that follow.

4.1.1 Name the closest town directly west of Colesberg. (2)

4.1.2 (a) National roads are indicated with a number enclosed in a pentagon, e.g.  .

Write down how many different national roads are shown on this map. (2)

(b) Name the towns found on the N12. (3)

4.1.3 Hanover is a town in the Northern Cape, while Middelburg is a town in the Eastern Cape.

Describe how the provincial borders are indicated on this map. (2)

4.2

On 13 January 2022, the flamingo was in area A on the map.
On 13 June 2023, it started moving southwards from area A, the starting point of tracking the bird, and followed the following path:

- On 14 June, the flamingo spent the night at a small pan at area B.
- On 15 June at 19:00, it flew non-stop for 14 hours and 25 minutes to arrive at area E, the end point.

[Adapted from https://www.news24.com/news24/community-newspaper/noordkaapbulletin]

Use ANNEXURE C and the information above to answer the questions that follow.

4.2.1 Write down the number of months the bird spent in area A. (2)

4.2.2 Determine the bird's date and time of arrival at area E. (3)

4.2.3 Write down the probability that the bird flew directly over Queenstown. (2)

4.2.4 The flight from area B to area E is 770 km.

Calculate (in km/h) the average speed of the bird as it flew from area B to area E.

You may use this formula: **Distance = speed × time** (4)

4.2.5 The direct distance between area B and area E is 311,72 miles.

The person tracking the bird's GPS stated that the bird flew an extra distance of 268,13 km when compared to the direct distance.

1 mile = 1,60934 km

Verify, with calculations, whether this statement is VALID. (5)

4.2.6 The biggest flamingo is 59 inches tall, which is approximately 5 feet.

Some interesting facts about a country where flamingos are common:

- Approximately 10% of this country's women are shorter than 5 feet.
- Women make up 50% of this country's population.
- This country has a total population of 333 million people.
- 78% of this country's population are adults.

Calculate, rounded to the nearest million, the number of adult women shorter than 5 feet in this country. (5)
[30]

QUESTION 5

5.1 Simon is a carpenter. He builds wooden bookcases using wooden pieces for shelves and the frame, and hardboard for the back.

The diagrams on ANNEXURE D in the ANSWER BOOK can be described as follows:

- DIAGRAM 1: Shows wooden pieces for the top, bottom, sides and shelves of a bookcase, with hardboard for the back of the bookcase
- DIAGRAM 2: Shows the hardboard (i.e. the back of the bookcase) and SIX pieces of wood, with dimensions, that will have to be cut out to assemble a single bookcase

Use the information above and ANNEXURE D in the ANSWER BOOK to answer the questions that follow.

5.1.1 Choose the letter (A–G) in DIAGRAM 2 that matches the item in DIAGRAM 1 given below. Write down only the letter next to the question numbers (5.1.1(a) to 5.1.1 (b)).

(a) Shelf (2)

(b) Back of bookcase (2)

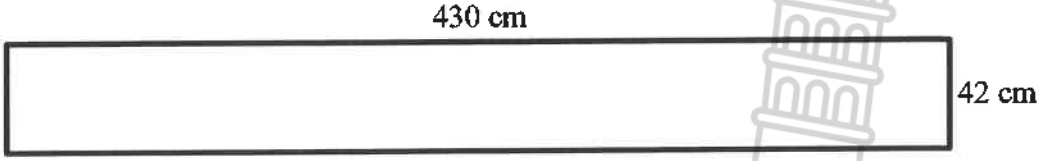
5.1.2 Write down the probability of randomly placing a book on a shelf with a height greater than 30 cm. (2)

5.1.3 The back of the bookcase is made out of hardboard.

(a) Explain why the dimensions of the hardboard is 60 cm by 90 cm. (2)

(b) Draw a scaled diagram of the hardboard according to scale 1 : 20. (6)

5.2 The wooden pieces for two identical bookcases are cut from ONE complete rectangular piece of wood which is 2 cm thick, 42 cm wide and 430 cm long.



Determine the area of the remaining part of the wood after cutting the required material.

You may use the following formula:

Area of rectangle = length × breadth (6)

5.3 The density of the wood is 0,75 g/cm^3.

A volume of approximately 0,4 m^3 unused wood is accumulated each month.

Simon states that it will take more than three months to accumulate one ton of unused wood.

Verify his statement, showing ALL calculations.

You may use the following formula:

$$\textbf{Density} = \frac{\textbf{mass}}{\textbf{volume}}$$

(6)
[26]

TOTAL: 150

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Candidate Barcode Label

NSC Answer Book

National Senior Certificate (Grade 12) – November 2025 ***Confidential***

CENTRE NUMBER	
EXAMINATION NUMBER	
DATE	
SUBJECT CODE	M L I T
SUBJECT NAME	MATHEMATICAL LITERACY

Sequence No. on mark sheet

BOOK NUMBER ____ OF ____ BOOKS

PAPER NUMBER 2

MARKER			MODERATOR'S INITIALS IN RELEVANT BLOCK									
Question	Marks	Marker's Code & Initials	Marks	SM	Marks	DCM	Marks	CM	Marks	IM	Marks	EM
1												
2												
3												
4												
5												
		TOTAL										

CONTROLLED AND CERTIFIED CORRECT (SURNAME AND INITIALS OF EA)

READ INSTRUCTIONS ON THE NEXT PAGE.

This answer book consists of 17 pages.

FOLLOW THESE INSTRUCTIONS CAREFULLY.

1. Clearly write your examination number and centre number in the spaces provided and attach your barcode label in the space provided.
2. Remember that your own name (or the name of your school) may not appear anywhere on this ANSWER BOOK.
3. Answer ALL the questions in the spaces provided in this ANSWER BOOK ONLY. If you require additional space for your answers:
   - 3.1 Use the additional space provided at the end of the ANSWER BOOK.
   - 3.2 When answering a question in the additional space, indicate clearly the question number in the column on the left-hand side.
4. No pages may be torn from this ANSWER BOOK.
5. Candidates may not retain the ANSWER BOOK or remove it from the examination room.
6. Answers must be written in black/blue ink as distinctly as possible.
7. Do not write in the margins.
8. Draw a neat line through any work/rough work that must NOT be marked.

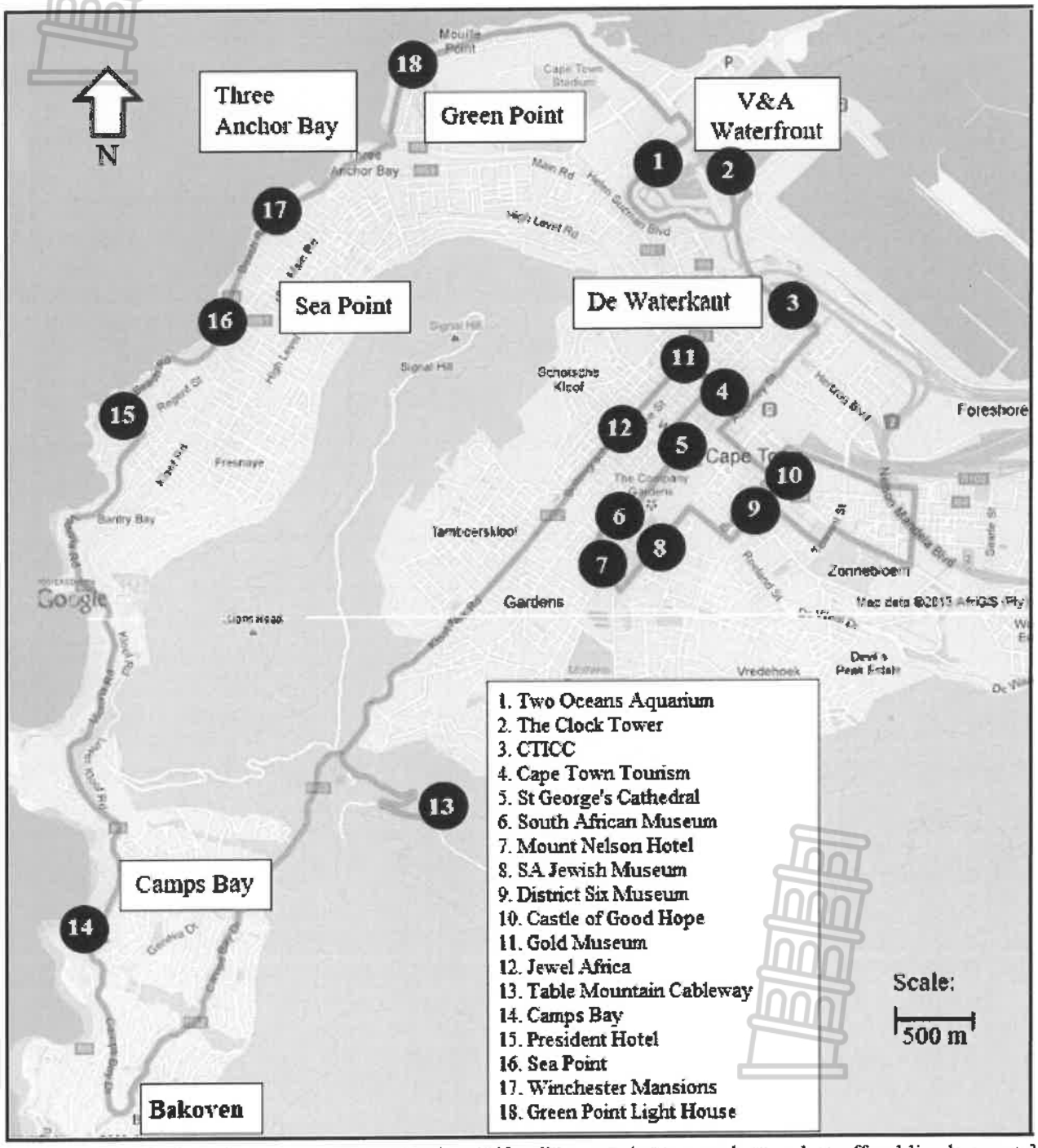
QUESTION 1.

	Solution	Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)
1.2.1		(2)
1.2.2		(2)
1.2.3		(2)
1.2.4		(2)
1.3.1	(a) (b) (c) (d) (e) (f)	(6)
1.3.2		(2)
1.3.3		(2)
		[28]

QUESTION 2

ANNEXURE A

ROUTE MAP OF A ROUND TRIP AND THE 18 STOPS MADE BY THE TOUR BUS



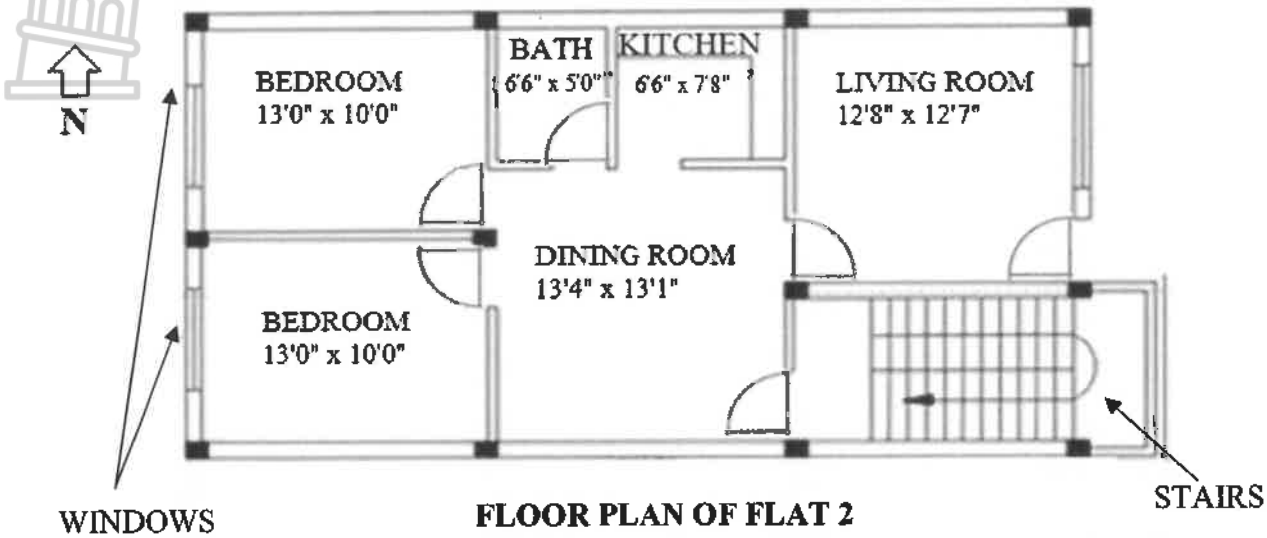
[Adapted from www.africanamericangolfersdigest.com/cape-town-hop-on-hop-off-red-line-bus-route]

	Solution	Marks
2.1.1		(2)
2.1.2		(2)
2.1.3	(a) (b) (c) (d)	(4)
2.2.1		(2)
2.2.2		(2)
2.2.3		(2)
2.2.4		(5)

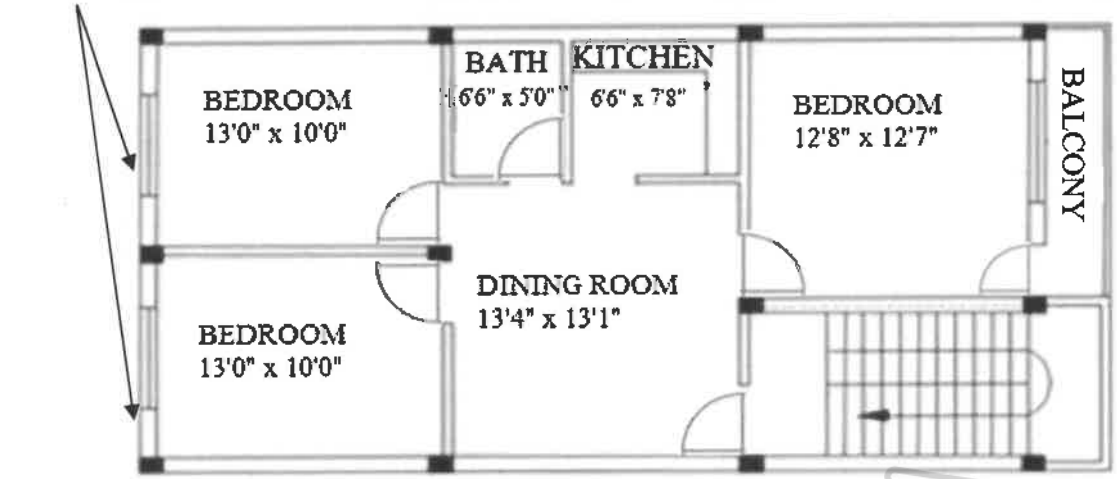
ANNEXURE B

PLAN OF A GROUND-FLOOR FLAT AND A FIRST-FLOOR FLAT

FLOOR PLAN OF FLAT 1



FLOOR PLAN OF FLAT 2



NOTE:
22'6" = 22 feet and 6 inches
1 foot = 30,48 cm; 1 inch = 2,54 cm

[Adapted from cadbull.com]

	Solution	Marks
2.3.1		(2)
2.3.2		(5)
2.3.3		(4)
2.3.4		(2)
2.3.5		(2)
		[34]

QUESTION 3

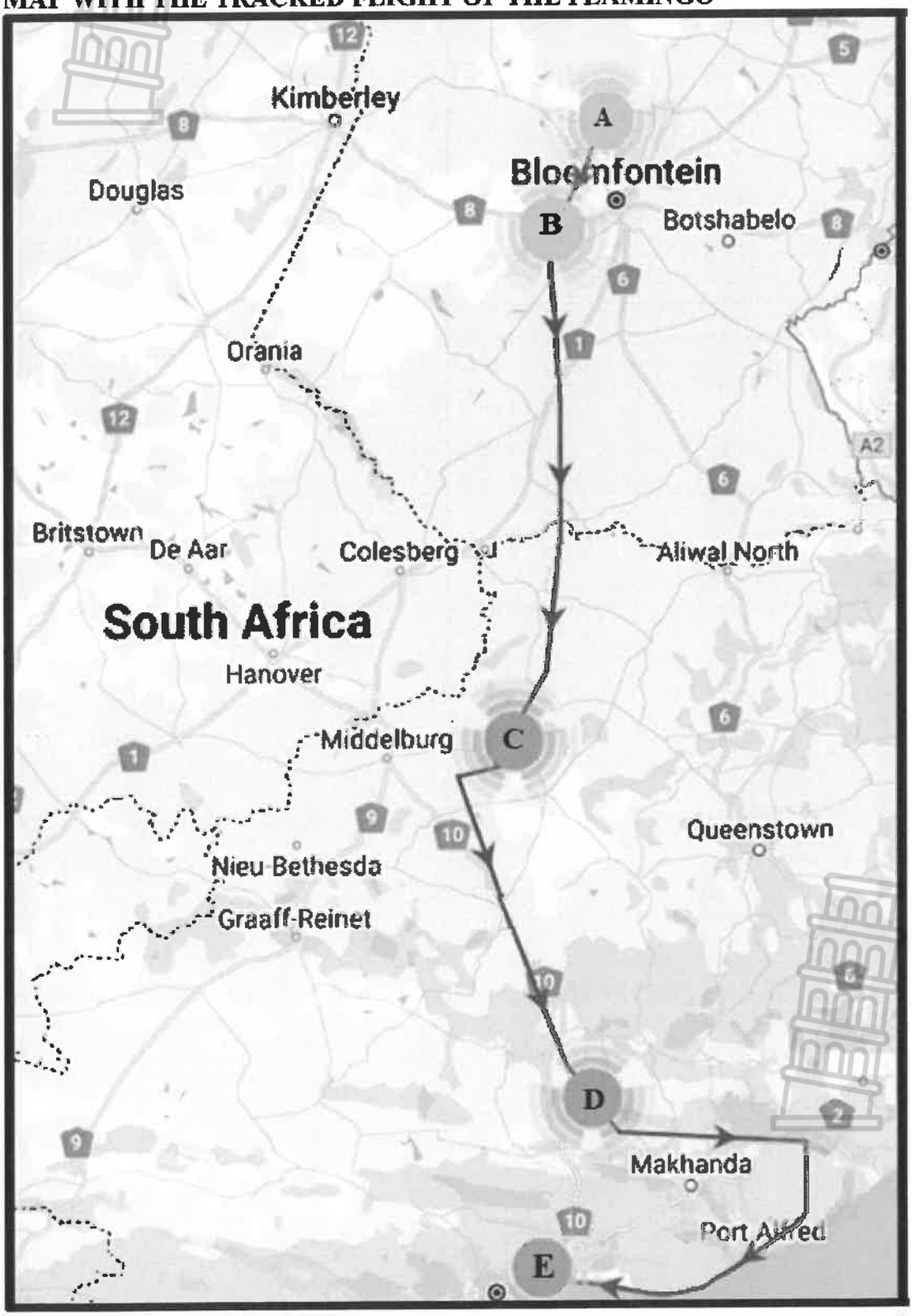
	Solution	Marks
3.1.1		(2)
3.1.2		(3)
3.1.3		(4)
3.1.4		(5)
3.1.5		(4)

	Solution	Marks
3.2.1		(2)
3.2.2		(3)
3.2.3		(9)
		[32]

QUESTION 4

ANNEXURE C

MAP WITH THE TRACKED FLIGHT OF THE FLAMINGO



[Adapted from www.news24.com/news24/community-newspaper/noordkaapbulletin]

	Solution	Marks
4.1.1		(2)
4.1.2(a)		(2)
4.1.2(b)		(3)
4.1.3		(2)
4.2.1		(2)
4.2.2		(3)
4.2.3		(2)
4.2.4		(4)

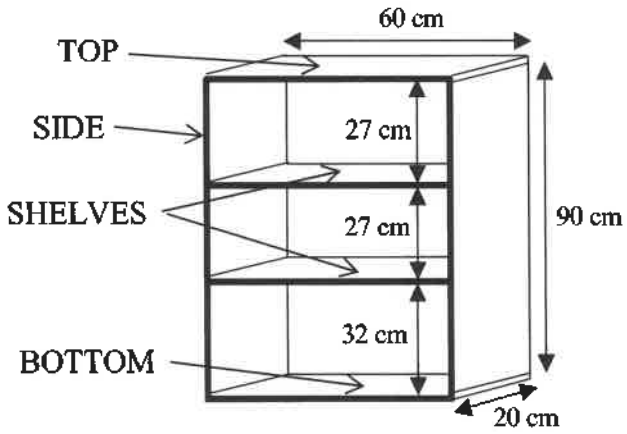
	Solution	Marks
4.2.5		(5)
4.2.6		(5)
		[30]

KEEP THIS PAGE BLANK.

QUESTION 5

ANNEXURE D

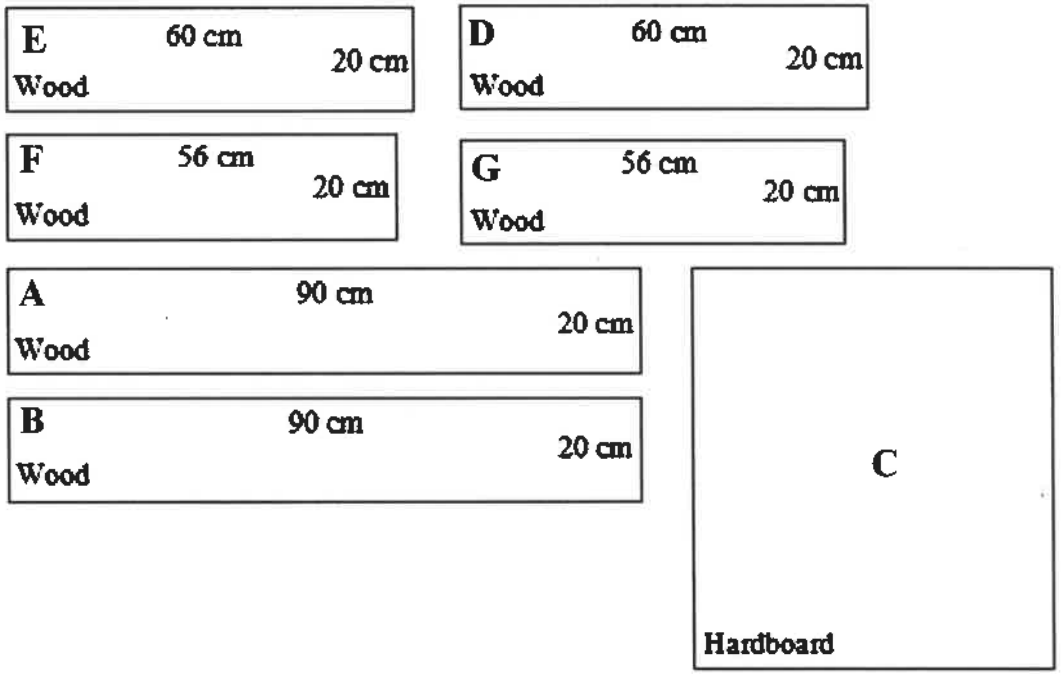
DIAGRAM 1: TOP, BOTTOM, SIDES AND SHELVES OF BOOKCASE AND HARDBOARD FOR THE BACK



NOTE:

- The back of this bookcase is made of a thin hardboard.
- The top and bottom pieces of wood extend right across the bookcase.
- The shelves are fitted in between the side pieces, so they are slightly shorter than the top and bottom pieces.

DIAGRAM 2: HARDBOARD AND SIX PIECES OF WOOD TO ASSEMBLE A SINGLE BOOKCASE



[Source: www.timbercity.co.za]

	Solution	Marks
5.1.1(a)		(2)
5.1.1(b)		(2)
5.1.2		(2)
5.1.3(a)		(2)
5.1.3(b)		(6)

	Solution	Marks
5.2		(6)
5.3		(6)
		[26]

TOTAL: 150

	Additional space	Marks

RE-MARK/RE-CHECK				
Question	Marks			Initials
1				
2				
3				
4				
5				
TOTAL				
HASH TOTAL				

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NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIOR SERTIFIKAAT*

GRADE/*GRAAD* 12

MATHEMATICAL LITERACY P2/ *WISKUNDIGE GELETTERDHEID V2*

NOVEMBER 2025

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
MA	Method with accuracy/*Metode met akkuraatheid*
MCA	Method with consistent accuracy/*Metode met volgehoue akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/graph/document/diagram/*Lees vanaf tabel/grafiek/dokument/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in 'n formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
P	Penalty, e.g. for no units, incorrect rounding off, etc./*Penalisering, bv. vir geen eenhede, verkeerde afronding, ens.*
NPR	No penalty for correct rounding/*Geen penalisering vir korrekte afronding nie*
NPU	No penalty for omitting unit, but wrong unit is penalised/*Geen penaliseringe indien die eenheid uitgelos is nie, maar wel indien 'n verkeerde eenheid gebruik word.*
AO	Correct answer only/*Slegs korrekte antwoord*

These marking guidelines consist of 15 pages.
Hierdie nasienriglyne bestaan uit 15 bladsye.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however, it stops at the second calculation error.
- NOTE: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- Rounding is an independent mark.
- A conclusion mark can only be given if relevant calculations precede it.
- No penalty for rounding (NPR) if the first decimal is correct.

LET WEL:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.*
- *Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.*
- *Let wel: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *'n Algemene nasienbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor*
- *Afronding tel as 'n onafhanklike punt*
- *'n Gevolgtrekkingspunt kan slegs gegee word indien relevante berekeninge dit voorgaan.*
- *Geen penalisering vir ronding (NPR) as die eerste desimaal korrek is nie.*

.

QUESTION/*VRAAG* 1 [28 MARKS/*PUNTE*] **ANSWER ONLY FULL MARKS**			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
1.1.1	B ✓✓ A	2A correct option (2)	MP L1 E
1.1.2	G ✓✓ A	2A correct option (2)	MP L1 E
1.1.3	A ✓✓ A	2A correct option (2)	M L1 E
1.1.4	E ✓✓ A	2A correct option (2)	MP L1 E
1.1.5	F ✓✓ A	2A correct option (2)	M L1 E
1.2.1	✓ RT ✓ A Quarter past two in the afternoon. *Kwart oor twee in die middag.* **OR/OF** ✓ RT ✓ A Fifteen minutes after two in the afternoon. *Vyftien minute na twee namiddag.*	1RT correct time in words 1A correct time of day **OR/OF** 1RT correct time in words 1A correct time of day (2)	M L1 E
1.2.2	Number of passengers/*Aantal passasiers* = $33\frac{1}{3}$ % × 189 ✓ MA = 63 ✓ A **OR/OF** Number of passengers/*Aantal passasiers* = $\frac{1}{3}$ × 189 ✓ MA = 63 ✓ A	1MA multiply with $33\frac{1}{3}$ % 1A simplification **OR/OF** 1MA multiply with $\frac{1}{3}$ 1A simplification (2)	M L1 M
1.2.3	B ✓✓ A	2A correct letter (2)	M L1 M
1.2.4	Thursday/*Donderdag* ✓✓ A	2A correct day (2)	M L1 E

Q/V	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.3.1	(a) R ✓ A (b) S ✓ A (c) U ✓ A (d) P ✓ A (e) Q ✓ A (f) T ✓ A	1A correct letter 1A correct letter 1A correct letter 1A correct letter 1A correct letter 1A correct letter (6)	MP L1 M
1.3.2	C ✓✓ A	2A correct formula (2)	M L1 E
1.3.3	Length of geyser/*Lengte van waterverwarmer* = 1,2 m × 1 000 ✓ MA = 1 200 mm ✓ A	1MA multiply by 1 000 1A conversion (2)	M L1 E
		[28]	

QUESTION/*VRAAG* 2 [34 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
2.1.1	Number of seats/ *Getal sitplekke* = 59 + 22 – 4 ✓MA = 77 seats/*sitplekke* ✓A	1MA addition and subtraction of correct values 1A simplification **AO** (2)	MP L1 E
2.1.2	✓A F2✓A	1A correct row 1A correct seat (2)	MP L2 M
2.1.3	a) Right/*Regs* ✓A b) Left/*Links* ✓A c) Aisle/*Gang* ✓A d) Second/*Tweede* ✓A	1A correct choice 1A correct choice 1A correct choice 1A correct choice (4)	MP L2 E
2.2.1	✓✓RT Camps Bay/*Kampsbaai*	2RT correct stop (2)	MP L1 E
2.2.2	Bar scale / Line scale /Linear scale / Graphic scale *Staafskaal/Lynskaal /Grafiese skaal* ✓✓RT	2RT correct scale (2)	MP L1 E
2.2.3	Clockwise/*Kloksgewys* ✓✓A	2A correct direction (2)	MP L1 E
2.2.4	✓A 13 mm = 500 m ✓RT Real distance in meter/*Regte afstand in meter* 19,2 km = 19 200 m ✓C Map distance/*Kaart afstand* = 19 200 ÷ 500 × 13 ✓MCA = 499,2 mm ✓CA **OR/OF** ✓A Bar/*Staaf*: 1,3 cm = 500 m ✓RT 500 m = 0,5 km ✓C Map distance / *kaart afstand* = $\frac{19{,}2\text{ km} \times 1{,}3\text{ cm}}{0{,}5\text{ km}}$ ✓MCA = 49,92 cm ✓CA **OR/OF**	1A measured distance 1RT correct ratio 1C convert to m 1MCA divide and multiply 1CA simplification **OR/OF** 1A measured distance 1RT correct ratio 1C convert to km 1MCA divide and multiply 1CA simplification **OR/OF**	MP L3 M

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
	Measure distance / *gemete afstand* ✓A 1,3 cm : 500 ✓RT ✓C 0,013 m : 500 m 1 : 38 461,53846 ?: 19,2 $? = \frac{19{,}2}{38\,461{,}53846}$ ✓MCA = 0,0004992 km = 49,92 cm OR 499,2 mm ✓CA Accept 12 mm – 13 mm	1A measured distance 1RT correct ratio 1C convert to m 1MCA divide by scale factor 1CA simplification Accept 460,8 for 12 mm (5)	
2.3.1	✓✓A Right / *Regs*	2A correct direction (2)	MP L1 E
2.3.2	Longer dimension/*Langer afmeting* = 12'8" ✓RT Length in cm/*Lengte in cm* 12' × 30,48 ✓MCA = 365,76 cm ✓C 8" × 2,54 = 20,32 cm ✓C Total/*Totaal* = 365,76 + 20,32 = 386,08 cm ✓CA **OR/OF** Longer dimension/*Langer afmeting* = 12'8" ✓RT ✓MCA Length/ *Lengte* = (12 × 30,48 cm) + (8 × 2,54 cm) ✓C ✓C = 365,6 cm + 20,32 cm = 386,08 cm ✓CA	1RT 12'8" 1MCA multiply by 30,48 1C convert feet to cm 1C convert inches to cm 1CA simplification **OR/OF** 1RT 12'8" 1MCA multiply by 30,48 1C convert feet to cm 1C convert inches to cm 1CA simplification (5)	MP L3 M
2.3.3	✓✓RT One has a living room and the other has a bedroom/ *Een het 'n woonkamer en die ander een 'n slaapkamer* ✓✓RT The balcony is on the first floor/ *Die balkon is op die eerste verdieping*	2RT identify first difference 2RT identify second difference (4)	MP L1 M
2.3.4	It is on the ground floor. /*Dit is op die grondverdieping.* ✓✓O	2O explanation (2)	MP L4 M
2.3.5	There must be more flats adjacent to it. ✓✓O *Daar moet meer woonstelle langsaan wees.*	2O explanation (2)	MP L4 M
		[34]	

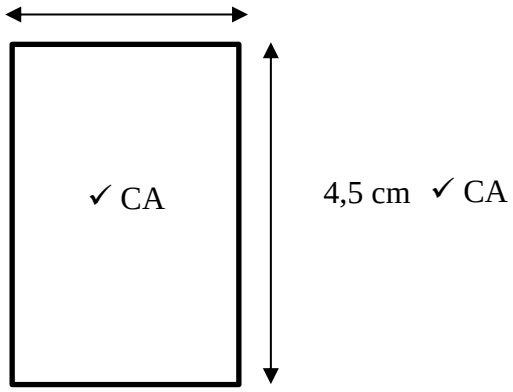
QUESTION/*VRAAG* 3 [32 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
3.1.1	✓ MA 13:12 – 3 hours and 27 min/*3 ure en 27 min* = 09:45 ✓A **OR/OF** Time = 13,2 – 3,45 = 9,75 hours ✓ MA = 09:45 ✓A	1MA subtracting time 1A simplification **OR/OF** 1MA subtracting the hours 1A simplification **AO** (2)	M L2 E
3.1.2	✓RT ✓ MA Number/Getal = 1 + 2 + 3 + 4 + 5 + 6 + 7 = 28 ✓CA **OR/OF** ✓RT Number/*Getal* = $\frac{7(1+7)}{2}$ = 7 × 4 ✓ MA = 28 ✓CA	1RT interpreting pattern 1MA adding values 1CA simplification **OR/OF** 1RT interpreting pattern 1MA multiplication of values 1CA simplification **AO** (3)	M L2 E
3.1.3	Height in cm/*Hoogte in cm* = 240 mm = 24 cm ✓C ✓ RT Area/*Oppervlakte* = $\frac{1}{2}$(28 cm × 24 cm) ✓ SF = 336 cm^2 ✓CA **OR/OF** ✓ RT ✓ SF Area/*Oppervlakte* = ½ × 280 mm × 240 mm = 33 600 mm^2 ✓CA = 336 cm^2 ✓C	1C conversion 1RT 28 1SF substitution in formula 1CA simplification **OR/OF** 1SF substitution in formula 1 RT 280 1CA simplification 1C conversion (4)	M L2 M
3.1.4	✓ MA Area of C/*Oppervlakte van C* = 30 240 mm^2 × 1,6 ✓ CA = 48 384 mm^2 Total Area/*Totale oppervlakte* ✓C = 48 384 mm^2 + 30 240 mm^2 + 33 600 mm^2 ✓ MCA = 112 224 mm^2 ✓ CA **OR/OF**	**CA from 3.1.3** 1MA multiply by 1,6 1CA simplification 1C convert to mm^2 1MCA adding values 1CA simplification **OR/OF**	M L3 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	Part/*Deel* B: 30 240 mm^2 ÷10^2 = 302,4 cm^2 ✓ MA Part /*Deel* C: 302,4 cm^2 ×1,6 = 483,84 cm^2 ✓ CA ✓ MCA ✓ CA Total/*Totaal*: (336 + 483,84 + 302,4) cm^2 = 1 122,24 cm^2 ∴ (1 122,24 ×100) mm^2 = 112 224 mm^2 ✓ C	1MA multiply by 1,6 1CA simplification 1MCA adding values 1CA simplification 1C convert to mm^2 (5)	
3.1.5	9 + 7 + 28 + 8 + 22 = 74 ✓ A P = $\frac{16}{74}$ ✓ MA × 100 % ✓ MA ≈ 21,62% ✓CA **OR/OF** 9 + 7 + 28 + 8 + 22 = 74 ✓ A P(red) = $\frac{9}{74}$ × 100% ✓ MA = 12,16216216% P(green) = $\frac{7}{74}$ × 100% ✓MA = 9,459459459% P(red or green) ≈ 12,16 % + 9,46% = 21,62% ✓CA **OR/OF** 9 + 7 + 28 + 8 + 22 = 74 ✓ A ✓ MA P(red or green) = $\frac{9}{74} + \frac{7}{74}$ ✓ MA = 0,1216216… + 0,945945… = 0,216216… × 100% = 21,62% ✓CA	1A correct number of circles 1MA correct numerator 1MA concept percentage 1CA simplification **OR/OF** 1A correct number of circles 1MA P(red) 1MA P(green) 1CA simplification **OR/OF** 1A correct number of circles 1MA P(red) 1MA P(green) 1CA simplification (4)	P L2 M
3.2.1	Radius of small circle/ *Radius van klein sirkel* = $\frac{4}{7}$ × 14 mm ✓MA = 8 mm ✓A	1MA multiplication by 14 1A correct length **AO** (2)	M L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
3.2.2	Circumference/*Omtrek* = 3,142 × 2 × 14 mm ✓SF = 87,976 mm ✓CA ≈ 88 mm ✓R	1SF substitution in formula 1CA simplification 1R rounding (3)	M L2 M
3.2.3	Area of material/*Oppervlakte van materiaal* ✓C = 30 cm × 137 cm ✓SF = 4 110 cm² ✓CA Total area of all circles/*Totale oppervlakte van alle sirkels* ✓SF ✓MA ✓MA = 3,142 × (1,4 cm)² × 48 × 2 × 2 = 1 182,40 cm² ✓CA Area of off-cuts/*Oppervlakte van oorblyfsels* = 4 110 cm² – 1 182,40 cm² = 2 927,60 cm² ✓CA ✓O Her statement is CORRECT/*Haar stelling is KORREK* **OR/OF** Area of material/*Oppervlakte van materiaal* ✓C = 30 cm × 137 cm ✓SF = 4 110 cm² ✓CA Area of circle /*Oppervlakte van sirkel* = 3,142 × radius² = 3,142 × (1,4 cm)² ✓SF =6,15832 cm² ✓MA Number of circles / *Getal sirkels* = 48 × 2 = 96 For both sides/ *Vir beide kante* = 96 × 2 = 192 ✓MA Total area/ *Totale oppervlakte* = 6,15832 cm² × 192 = 1 182,39744 cm² ✓CA Area of off-cuts/*Oppervlakte van oorblyfsels* = 4 110 – 1 182,439744 ≈ 2 927,60 cm² ✓CA ✓O Her statement is CORRECT/*Haar stelling is KORREK*	1C converting to cm 1SF substitution in formula 1CA correct area 1SF substitution in formula 1MA multiplying by 48 1MA multiplying by 2 × 2 1CA simplification 1CA area of off cuts 1O opinion **OR/OF** 1C converting to cm 1SF substitution in formula 1CA correct area 1SF substitution in formula 1MA multiplying by 48 1MA multiplying 96 by 2 1CA simplification 1CA area of off cuts 1O opinion (9)	M L4 D
		[32]	

QUESTION/*VRAAG* 4 [30 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.1.1	De Aar ✓✓ A	2A correct town (2)	MP L1 E
4.1.2 (a)	8 ✓✓ A	2A correct number (2)	MP L2 E
4.1.2 (b)	✓✓ A ✓ A Kimberley and/*en* Britstown	2A 1st correct town 1A 2nd correct town (3)	MP L2 E
4.1.3	Provincial borders are indicated by a broken line / dotted line/ dashed line ✓✓ O *Provinsiale grense word deur 'n gebroke lyn/ stippellyn voorgestel*	2O correct description (2)	MP L4 M
4.2.1	17 months/*maande* ✓✓ A	2A number of months (2)	M L2 E
4.2.2	Time of arrival/*Aankomstyd* ✓ MA = 19:00 + 14 hours 25 min/*14 ure 25 min* = 09:25 ✓ A ✓ A 16 June 2023 at 09:25 / *16 Junie 2023 teen 09:25* **OR/OF** From/*Van* 19:00 to 24:00 = 5 hours/*ure* ✓ A 14 hours/ *ure* 25 min – 5 hours/*ure* = 09:25 ✓ A ✓ A 16 June 2023 at 09:25 / *16 Junie 2023 teen 09:25*	1MA adding the flight time 1A 16 June 1A arrival time **OR/OF** 1A 5 hours 1A 16 June 1A arrival time **AO** (3)	M L3 M
4.2.3	0 ; 0% , Impossible /*Onmoontlik* ✓✓ A	2A correct probability (2)	P L2 E
4.2.4	**Distance = Speed × time /*Afstand = Spoed × tyd*** 770 km = speed/*spoed* × 14 hours 25 min/*14 ure 25 min* ✓ SF Speed/*Spoed* $= \frac{770\text{ km}}{14\text{ hours }25\text{ min}}$ ✓ S $= \frac{770\text{ km}}{14{,}4166\ldots\text{ hours}}$ ✓C $\approx 53{,}41$ km/h ✓CA	1SF substitute into formula 1S change subject of formula 1C convert minutes to hours 1CA simplification (4)	M L2 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.2.5	1 mile/*myl* = 1,60934 km 311,72 miles/*myle* = *?* km *?* = 311,72 × 1,60934 km ✓MA = 501,6634… km ✓A Extra distance/*Ekstra afstand* = 770 km – 501,6634… km ✓MCA = 268,336… km ✓CA INVALID/*NIE GELDIG NIE* ✓O **OR/OF** Distance/ *Afstand* = 311,72 × 1,60934 km ✓MA = 501,6634… km ✓A Total distance/ *Totale afstand* = 501,6634… km + 268,13 km ✓MCA = 769,7934… km ✓CA INVALID/ *NIE GELDIG NIE* ✓O	1MA multiply with conversion factor 1A simplification 1MCA subtracting 1CA simplification 1O verification **OR/OF** 1MA multiply with 1,60934 1A simplification 1MCA adding 268,13 1CA simplification 1O verification (5)	M L4 M
4.2.6	Number of adults/*Aantal volwassenes* = 78% × 333 million/*miljoen* ✓MA = 259,74 million/*miljoen* Number of adult women/*Aantal volwasse vroue* = 50% × 259,74 million/*miljoen* ✓MA = 129,87 million/*miljoen* Number shorter than flamingo/*Aantal korter as flamink* =10% × 129,87 million/*miljoen* ✓MA = 12,987 million/*miljoen* ✓CA ≈ 13 million/*miljoen* ✓R **OR/OF** ✓MA Number of women/ *vroue* = 50% × 333 000 000 = 166 500 000 ✓MA Number of adults/ *volwasse* = 78% × 166 500 000 = 129 870 000 Number shorter / *korter* = 10% × 129 870 000 ✓MA = 12 987 000 ✓CA ≈ 13 000 000 ✓R	1MA calculating 78% 1MA calculating 50% of previous value 1MA calculating 10% of previous value 1CA simplification 1R correctly rounded **OR/OF** 1MA calculating 50% 1MA calculating 78% of previous value 1MA calculating 10% of previous value 1CA simplification 1R correctly rounded (5)	M L3 M
		[30]	

QUESTION/*VRAAG* 5 [26 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
5.1.1 (a)	F **OR/OF** G ✓✓ RT	2RT for correct letter (2)	MP L2 M
5.1.1 (b)	C ✓✓ A	2RT correct letter (2)	MP L2 M
5.1.2	✓ A P = $\frac{1}{3}$ **OR/OF** 0,333 **OR/OF** 33,3% ✓ A	1A numerator 1A denominator **NPR** (2)	P L2 E
5.1.3 (a)	The length of the bookcase is 60 cm and the height of the bookcase is 90 cm. ✓✓ O *Die lengte van die boekrak is 60 cm en die hoogte van die boekrak is 90 cm.* **OR/OF** It covers the entire back of the bookcase ✓✓ O *Dit bedek die hele agterkant van die boekrak*	2O explanation **OR/OF** 2O explanation (2)	M L4 M
5.1.3 (b)	Dimensions/*Afmetings:* Width/*Breedte* = 60 cm ÷ 20 ✓ MA = 3 cm ✓ A Height/*Hoogte* = 90 cm ÷ 20 = 4,5 cm ✓CA 3 cm ✓ CA  	1MA using scale 1A simplification 1CA simplification 1CA width drawn 1CA height drawn 1CA shape (6)	M L3 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
5.2	Area of complete piece of wood/*Oppervlakte van volledige stuk hout:* = 42 cm × 430 cm ✓ SF = 18 060 cm^2 ✓ A Area of pieces of one bookcase/*Oppervlakte van dele van een boekrak:* ✓ MA = (90 + 60 + 56) cm × (20 + 20) cm = 8 240 cm^2 ✓ CA Area of unused wood/*Oppervlakte van ongebruikte hout:* = 18 060 – 2(8 240) ✓ MCA = 1 580 cm^2 ✓ CA **OR/OF** Area complete piece/*Oppervlakte van volledige stuk* ✓ SF = 42 cm × 430 cm = 18 060 cm² ✓ A For 1 bookcase: ✓ MA Area /*oppervlakte* E & D = 60 cm × 20 cm × 2 = 2 400 cm² Area /*oppervlakte* F & G = 56 cm × 20 cm × 2 = 2 240 cm² Area /*oppervlakte* A & B = 90 cm × 20 cm × 2 = 3 600 cm² Total/*Totaal* = (2 400 + 2 240 + 3 600) cm² = 8 240 cm² ✓ CA For 2 bookcases/ Vir 2 boekrakke = 8 240 cm² × 2 = 16 480 cm² ✓ MCA Remaining part/ *Oorblywende deel* = 18 060 cm² – 16 480 cm² = 1 580 cm² ✓ CA **OR/OF** For 2 bookcases/*Vir 2 boekrakke* ✓ MA E&D Area /*Oppervlakte*= 60 cm × 20 cm × 4 = 1200 cm^2 × 4 ✓ MCA = 4800 cm^2 A&B Area /*Oppervlakte* = 90 cm × 20 cm × 4 = 1 800 cm^2 × 4 = 7 200 cm^2 F&G Area /*Oppervlakte* = 56cm × 20 cm × 4 = 1 120 cm ^{2} × 4 = 4 480 cm^2 Area complete piece/*Oppervlakte van volledige stuk* = 430 cm × 42 cm ✓ SF = 18 060 cm^2 ✓ A Remaining part/ *Oorblywende deel* = ✓ MCA 18 060 cm²– (4480 + 7200 + 4800) cm^2 = 1 580 cm² ✓ CA	1SF substitute into formula 1A simplification 1MA total length and width 1CA simplification 1MCA multiplying by 2 1CA simplification **OR/OF** 1SF substitute into formula 1A simplification 1MA total length and width 1CA simplification 1MCA multiplying by 2 1CA simplification **OR/OF** 1MA total length and width 1MCA multiplying by 4 1SF substitute into formula 1A simplification 1MCA subtraction 1CA simplification (6)	M L3 M

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	OR/OF Total length of one bookcase/*Totale lengte van een boekrak:* = 2(90) + 2(60) + 2(56) ✓ MA = 412 cm ✓ A Wood left over /*Hout wat oorbly* = 430 cm – 412 cm ✓ MA = 18 cm ✓ CA Area of unused wood/*Oppervlakte van ongebruikte hout:* = 18 cm × 40 cm + (2 × 430) ✓ MCA = 720 cm + 860 cm = 1 580 cm^2 ✓ CA **OR/OF** Total length of one bookcase/*Totale lengte van een boekrak:* ✓ MA = 2(90cm) + 2(60cm) + 2(56cm) = 412 cm ✓ A Total width of 2 bookcases /*Totale breedte van 2 boekrakke* ✓ MA 42 cm – 20 cm – 20 cm = 2 cm ✓ CA Wood left /*Oorblywende hout* = 430 cm – 412 cm = 18 cm Area of unused wood/*Oppervlakte van ongebruikte hout:* = (412 cm × 2cm) + (18cm × 42 cm) ✓ MCA = 1580 cm^2 ✓ CA	**OR/OF** 1MA adding values and multiplied by 2 1A simplification 1MA subtraction 1CA simplification 1MCA adding unused areas 1CA simplification **OR/OF** 1MA adding values and multiplied by 2 1A simplification 1MA subtraction 1CA simplification 1MCA adding unused areas 1CA simplification (6)	
5.3	Volume of wood per month/*Volume hout per maand* = 0,4 m^3 × 100 ^{3} = 400 000 cm^3 ✓ C Mass per month/ *Massa per maand* = 0,75 g/ × 400 000 cm^3 ✓ MA ✓ CA = 300 000 g ÷ 1000 = 300 kg 1 ton = 1000 kg Number of months to accumulate one ton/ *Getal maande om 'n ton mekaar te maak* ✓ C = 1000 kg ÷ 300 kg = 3,33 ✓ CA VALID/*GELDIG* ✓ O	1C converting m^3 to cm^3 1MA substitution 1CA mass in gram 1C tonnes to kg 1CA number of months 1O verification (6)	M L4 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
	OR/OF	**OR/OF**	
	Unused wood produced per month *Ongebruikte hout per maand* ✓ MA ✓ C = (0,4 × 1 000 000) cm^3 × 0,75 g/ cm^3 = 300 000 g ✓ CA = 300 000 ÷ 1 000 = 300 kg = 300 ÷ 1 000 = 0,3 ton ✓ C	1MA substitution 1C conversion 1CA mass in grams 1C convert to tonnes	
	Number of tons in 3 months / *Aantal ton in 3 maande* = 0,3 × 3 = 0,9 ✓ CA VALID/ *GELDIG* ✓ O	1CA tons in 3 months 1O verification	
	OR/OF 0,4 m^3 × 3 = 1,2 m^3 ✓ A	**OR/OF** 1A volume in 3 months	
	Mass of used wood/*Massa van ongebruikte hout* ✓ MA = (1,2 × 100 × 100 × 100 × 0,75) g ✓ C = 900 000 g ✓ CA = 900 kg ✓ C < 1000 kg His statement is correct/*Sy stelling is korrek* ✓ O	1MA substitution 1C converting m^3 to cm^3 1CA mass in g 1C converting to kg in 3 months 1O verification	
	OR/OF 1 ton = 1 000 000 g ✓ C Volume = 0,4 m^3 × 100^3 = 400 000 cm^3 / month/*maand* ✓ C Mass/*Massa* = (0,75 × 400 000)g = 300 000 g ✓ MA Number of months/ Getal maande ✓ CA $= \frac{1\,000\,000\text{ g}}{300\,000\text{ g}}$ = 3,3 months ✓ CA Statement is valid/*Sy stelling is korrek* ✓ O	**OR/OF** 1C converting to gram 1C converting m^3 to cm^3 1MA substitution 1CA mass in g 1CA number of months 1O verification (6)	
		[26]	
		TOTAL/*TOTAAL*: 150	