



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

MATHEMATICAL LITERACY P2

MAY/JUNE 2026

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 Choose ONE word/term from the list below for each of the following explanations or definitions used in Mathematical Literacy.

Write only the word/term next the question numbers (1.1.1 to 1.1.5) in the ANSWER BOOK, e.g. 1.1.6 volume.

diameter; metric system; outcome; <i>Google</i> map; layout plan; imperial system; radius; strip chart; probability; elevation map

- | | | |
|-------|--|-----|
| 1.1.1 | Uses metres, litres, grams and degrees Celsius for measured quantities | (2) |
| 1.1.2 | A map of a section of a travelling route not drawn to scale | (2) |
| 1.1.3 | A visual representation of the spatial arrangement of various elements within a property | (2) |
| 1.1.4 | Events and numerical descriptions of how likely an event can occur | (2) |
| 1.1.5 | Double the distance from the centre of the circle to any point on its boundary | (2) |

1.2

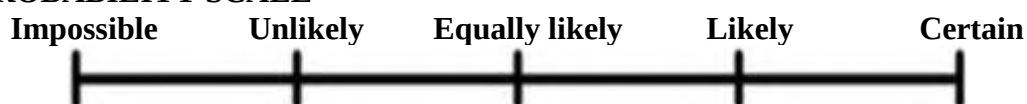
A weather prediction table for Toronto, Canada, and a probability scale are given below.

WEATHER PREDICTION TABLE

	MON.	TUE.	WED.	THU.	FRI.	SAT.	SUN.
	04/19	04/20	04/21	04/22	04/23	04/24	04/25
	Mainly sunny	Cloudy with sunny breaks	Snow	Cloudy with sunny breaks	Sunny	Cloudy with sunny breaks	Showers
							
Predicted	16 °C	7 °C	1 °C	6 °C	12 °C	13 °C	9 °C
Feels like	15 °C	4 °C	-5 °C	1 °C	11 °C	12 °C	7 °C
Night	2 °C	0 °C	-1 °C	0 °C	2 °C	5 °C	3 °C
POP	30%	30%	80%	30%	10%	50%	60%

[Adapted from www.weatherwox.com]

PROBABILITY SCALE



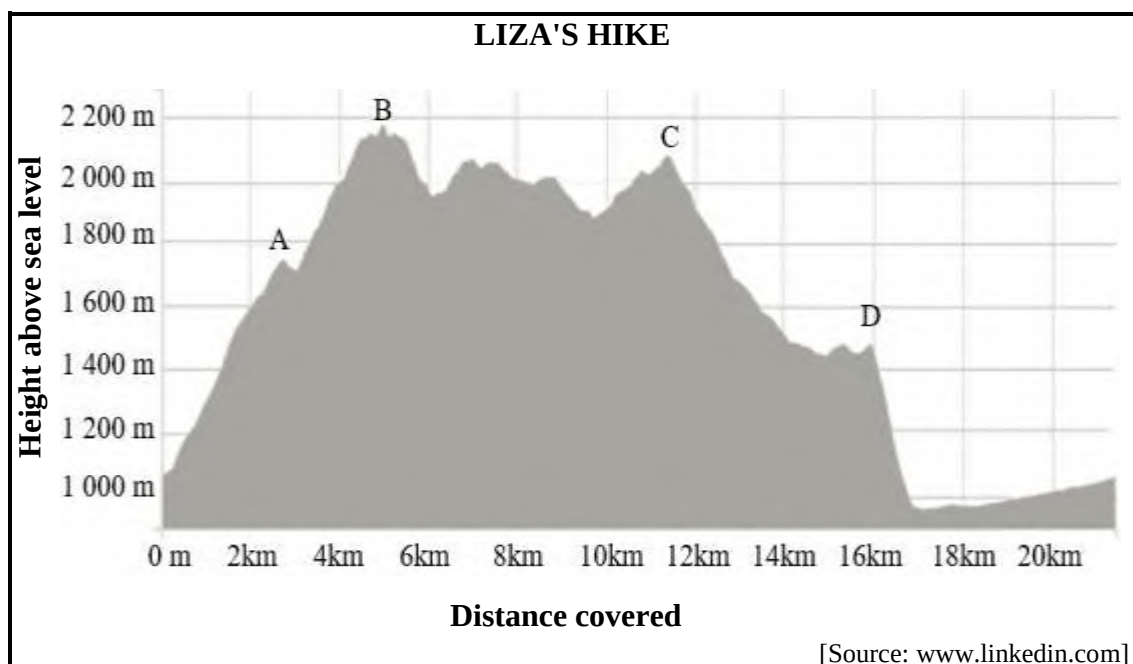
NOTE:

- POP – probability of precipitation
- Precipitation – any form of water falling from the sky, like rain, fog, mist

Use the information above to answer the questions that follow.

- 1.2.1 Determine the number of days for which this weather prediction table is valid. (2)
- 1.2.2 Write down the percentage and the day on which it is equally likely for precipitation to occur. (3)
- 1.2.3 Name the day on which the predicted temperature is 6 °C higher than what it actually feels like. (2)
- 1.2.4 The actual rainfall for Monday, Thursday and Sunday was 1,3 mm, 1,4 mm and 18 mm respectively.
 Calculate, in mm, the total rainfall for these days. (2)
- 1.2.5 It started to snow at 14:53 on Wednesday.
 Write down this time in words. (2)

- 1.3 Liza is a hiker. Below is a map of one of the toughest hikes she undertook.



Use the map above to answer the questions that follow.

- 1.3.1 Name the type of map shown above. (2)
- 1.3.2 Write down the approximate value of the height above sea level for point **A**. (2)
- 1.3.3 Identify the point (**A**, **B**, **C**, **D**) after which the steepest decline begins. (2)
- 1.3.4 Calculate the distance covered from point **B** to point **D**. (3)
- [30]**

QUESTION 2

2.1

Tourists from Canada visited Mpumalanga. They decided to visit the waterfalls and other tourist attractions in this region. They obtained a map showing the roads, towns and the locations of the different waterfalls.

ANNEXURE A in the ANSWER BOOK shows the map of the waterfalls in the Sabie region.

[Adapted from Waterfalls SA SABIE@sabieriver on Facebook]

Use ANNEXURE A to answer the questions that follow.

- 2.1.1 Name the type of scale shown on this map. (2)
- 2.1.2 Write down the road number that connects the Sabie Falls and Mbombela. (2)
- 2.1.3 The tourists left Graskop and travelled on the R533 southwards and then eastwards. When they reached the fork in the road, they turned right.
Name their destination town. (2)
- 2.1.4 Determine the number of waterfalls indicated on this map. (2)
- 2.1.5 Use the given scale and measurement to find the direct distance (rounded to the nearest km) between the Sabie Falls and the Long Tom Falls. (5)

2.2

In Canada, some of the biggest names in music appear on stage at the Bud-Stage Arena.

ANNEXURE B in the ANSWER BOOK shows the seating plan of the Bud-Stage Arena, as well as a close-up view of the rows of seats in section 203.

Other information:

- There are four levels of reserved seating, starting from level 100 to level 400.
- Each level is divided into numbered sections.
- Level 100 to level 300 has a covered roof.
- The lawn section is unreserved seating and is 100 to 150 feet away from the stage.
- The capacity of the venue is 16 000, with 5 500 seats under the covered roof and 3 500 in level 400.
- The first row in section 203 is 20 rows away from the stage.

[Adapted from <https://www.canadianamphitheatre.net/seating-chart>]

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

2.2.1 Write down the total number of numbered sections under the covered roof. (2)

2.2.2 Calculate the maximum number of people that can be seated on the lawn. (3)

2.2.3 Determine the general direction in which a person seated in section 301 will be facing if he is looking at a musician standing in the centre of the stage. (2)

2.2.4 Convert the minimum distance between the lawn seating and the stage to metres.

Use the conversion factor: 3 feet = 91,44 cm (4)

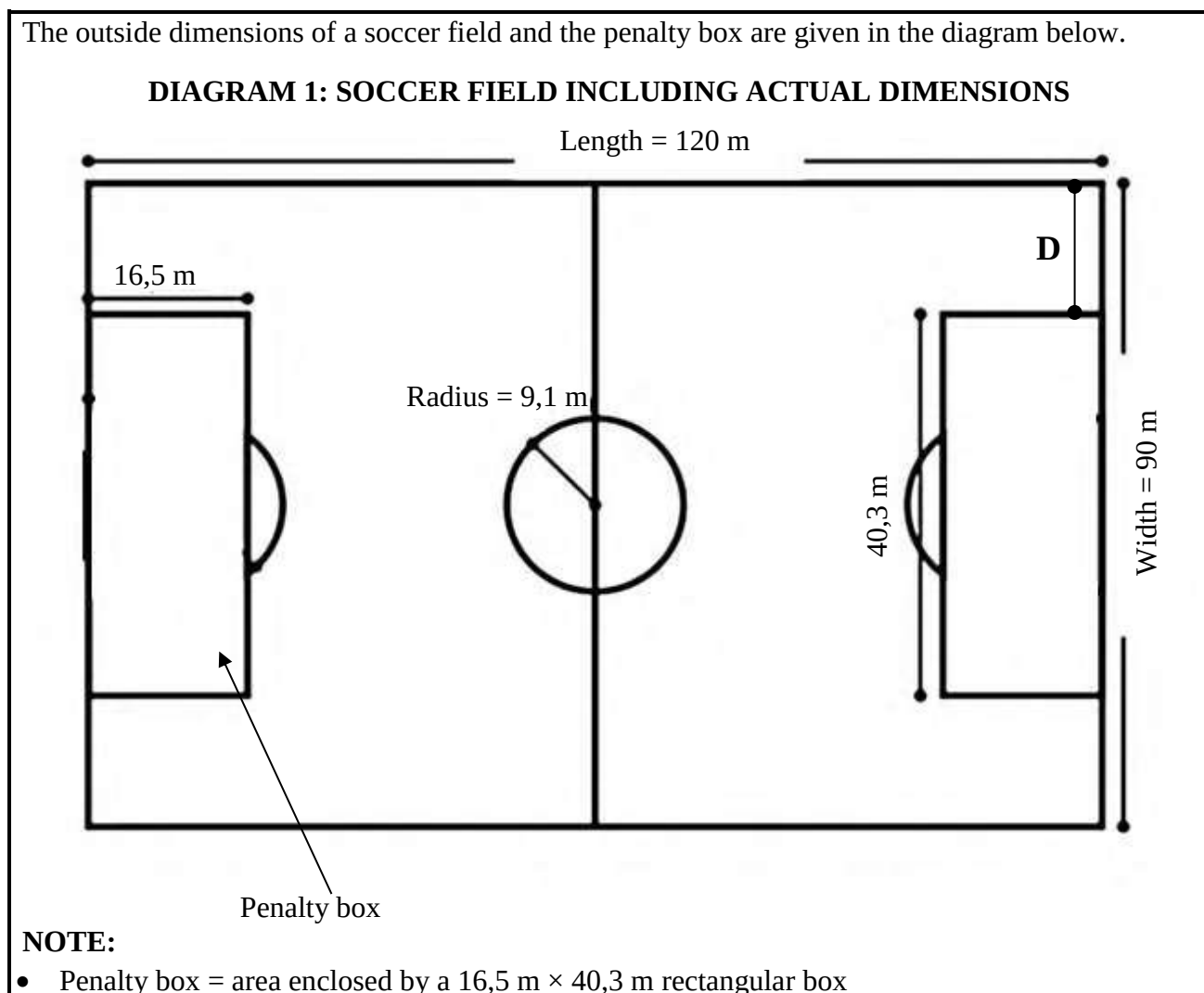
2.2.5 People seated in row ZZ, in section 203, stated they were 46 rows from the stage.

Verify, with calculations, whether this statement is VALID. (4)

[28]

QUESTION 3

3.1 The outside dimensions of a soccer field and the penalty box are given in the diagram below.



Use the information above to answer the questions that follow.

3.1.1 The penalty box is in the centre of the width of the soccer field.

Determine the missing value **D**. (2)

3.1.2 Calculate the area of ONE penalty box as a percentage of the area of the soccer field.

You may use the following formula: **Area = length × width** (5)

3.1.3 As part of the training schedule, a soccer player needs to run around the outer edge of the soccer field.

A player stated that if he ran 10 times around the field, he would have covered a total distance of 4 km.

Verify, with calculations, whether the player's statement is VALID.

You may use the following formula:

Perimeter of rectangle = 2 × length + 2 × width (5)

3.2

Soccer fields need to be watered regularly. Windmills can be used to extract water from underground to store in a cylindrical tank. This water is used to wet the soccer field.

On ANNEXURE C, in the ANSWER BOOK, the diagram of the windmill and the water storage tank is shown.

OTHER INFORMATION ABOUT THE WINDMILL AND THE WATER TANK

WINDMILL	WATER TANK
- The radius of the circle formed by the rotating blades is 1,2 m. - The circular motion makes the pump rod go up and down. - This makes the water flow through the discharge pipe. - The speed of water flowing through the discharge pipe is 5 gallons per minute.	- The inner dimensions of the cylindrical tank: Diameter = 5 m Height = 3,3 m Volume = $3,142 \times (\text{radius})^2 \times \text{height}$

NOTE:

- 1 gallon = 3,78541178 litres
- 1 000 ℓ = 1 m³

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

3.2.1 Write (as a decimal rounded to THREE digits) the probability of randomly choosing ONE of the blades of the windmill. (3)

3.2.2 When the wind blows, the blades make full rotations.

Calculate the total distance that a point on the tip of blade **A** will make after ONE rotation.

You may use the following formula:

Circumference of a circle = $3,142 \times \text{diameter}$ (3)

3.2.3 Choose the correct word in brackets:

In the context, the relationship between the speed of water flowing in the pipe and the speed at which the wind blows is a (direct/indirect) proportion. (2)

3.2.4 It is stated that in order to increase the water level in the tank by 21 cm, 4,123875 m³ of water need to be pumped into the tank.

(a) Show, with calculations, how 4,123875 m³ was calculated. (3)

(b) Determine the time it will take for the water flowing into the tank to increase the water level by 21 cm.

Give your answer in hours and minutes, rounded to the nearest minute.

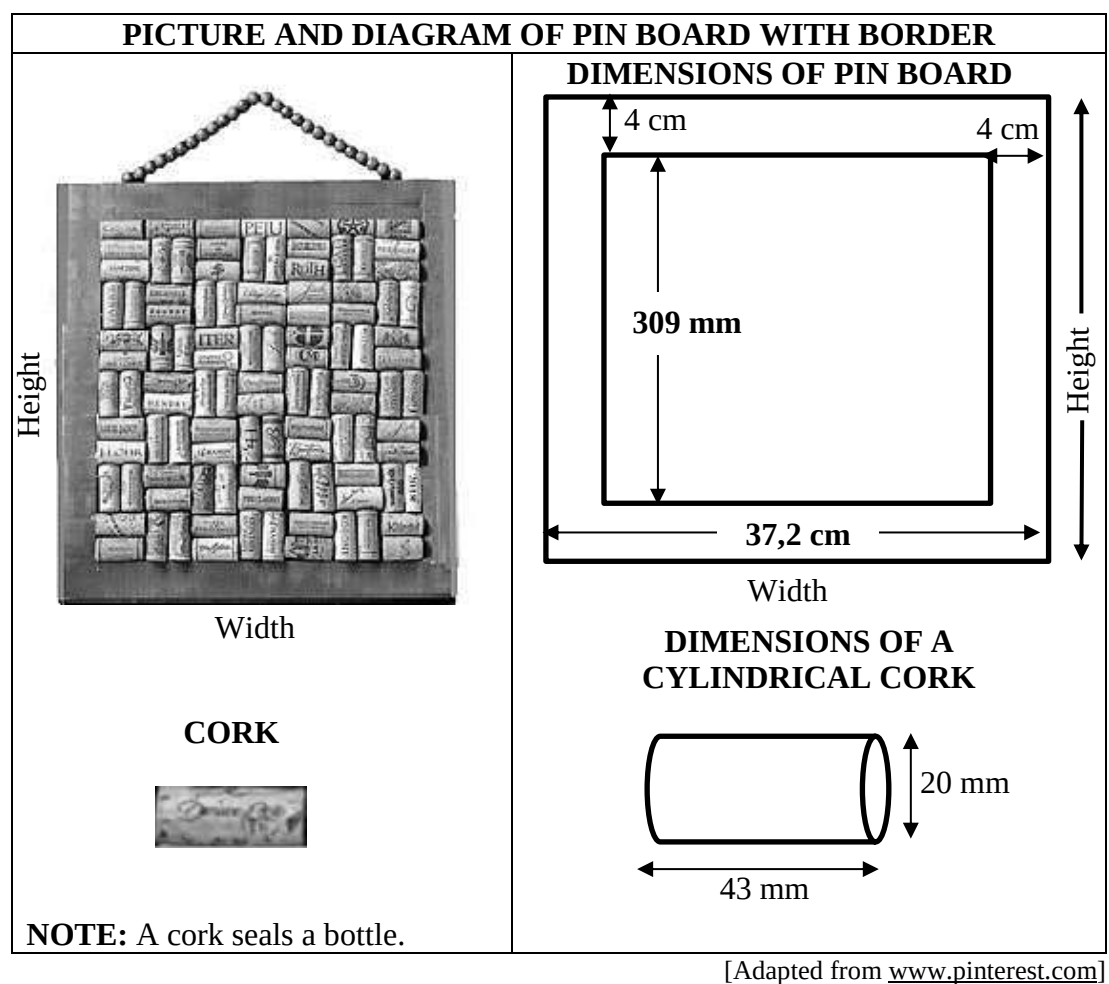
(8)
[31]

QUESTION 4

4.1

Lareb decides to make a pin board from recycled corks. All the corks are cylindrical in shape and exactly the same size.

The corks are pasted onto a rectangular wooden board with a border of 4 cm all around.



Use the information above to answer the questions that follow.

4.1.1 Determine the radius of ONE cork. (2)

4.1.2 Calculate, in mm, the outside height of the pin board with the border. Round off your answer to the nearest 100 mm. (4)

4.1.3 Lareb collected 53 corks. She completely painted each cork with 3 layers of special paint.

The spread rate of the paint is 3 m² per litre.
 It costs R55,00 for a 125 ml can of this paint.

Calculate the total cost of the paint required.

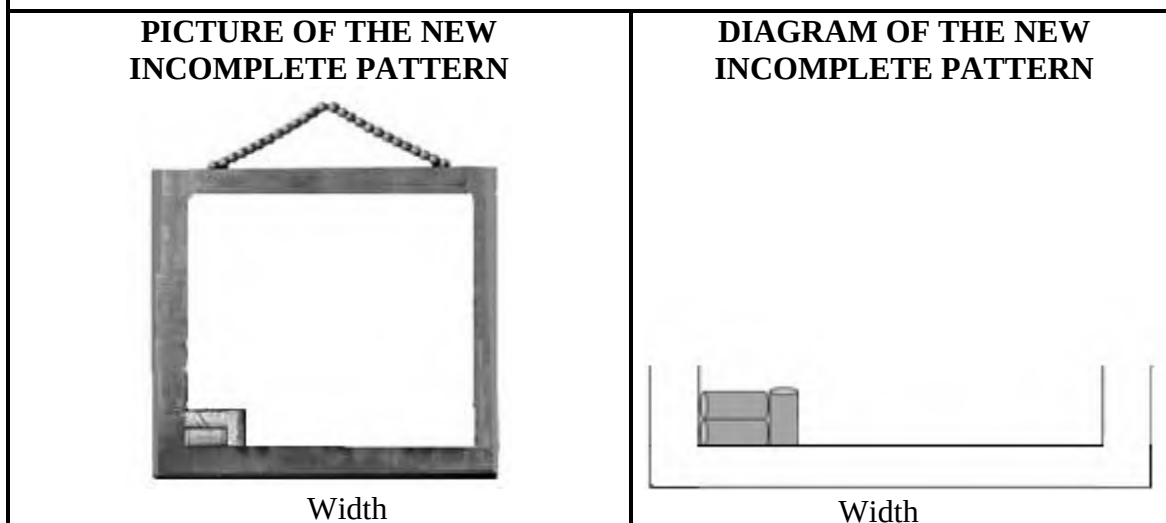
You may use the following formula:

Total surface area of a cylinder =
 $2 \times 3,142 \times \text{radius}^2 + 2 \times 3,142 \times \text{radius} \times \text{height}$ (8)

4.2

Lareb decides to use a different pattern than the one in the picture for QUESTION 4.1.

She is now going to use a new pattern by placing two corks lengthwise and one upright along the inside width of the pinboard. This pattern is repeated, ensuring that the border is still 4 cm. See the diagram below.



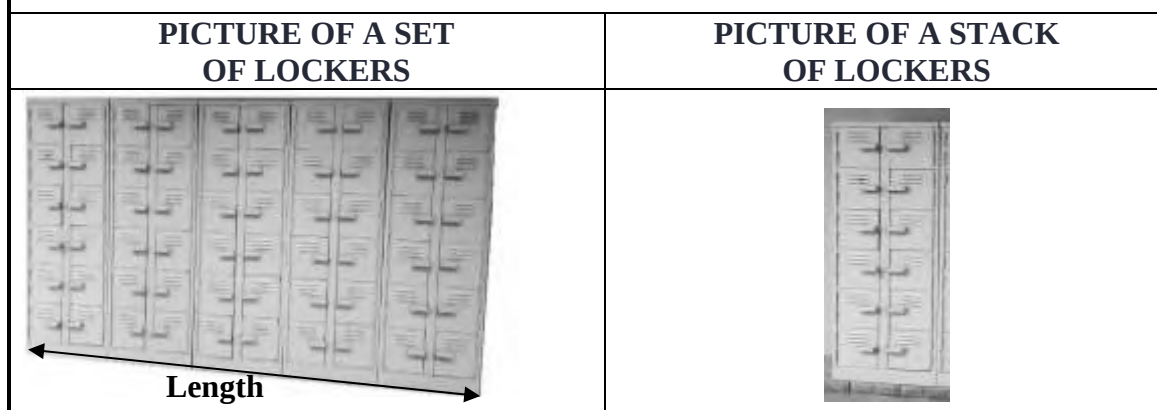
Lareb claims that the pattern will be repeated exactly FOUR times to complete the first row of the width of the pinboard.

Verify with calculations if her statement is VALID.

(6)

4.3

Success High School has lockers for the learners to use. A stack of lockers has 12 lockers, and 5 stacks of lockers are placed next to each other to form a set, as indicated in the pictures below.

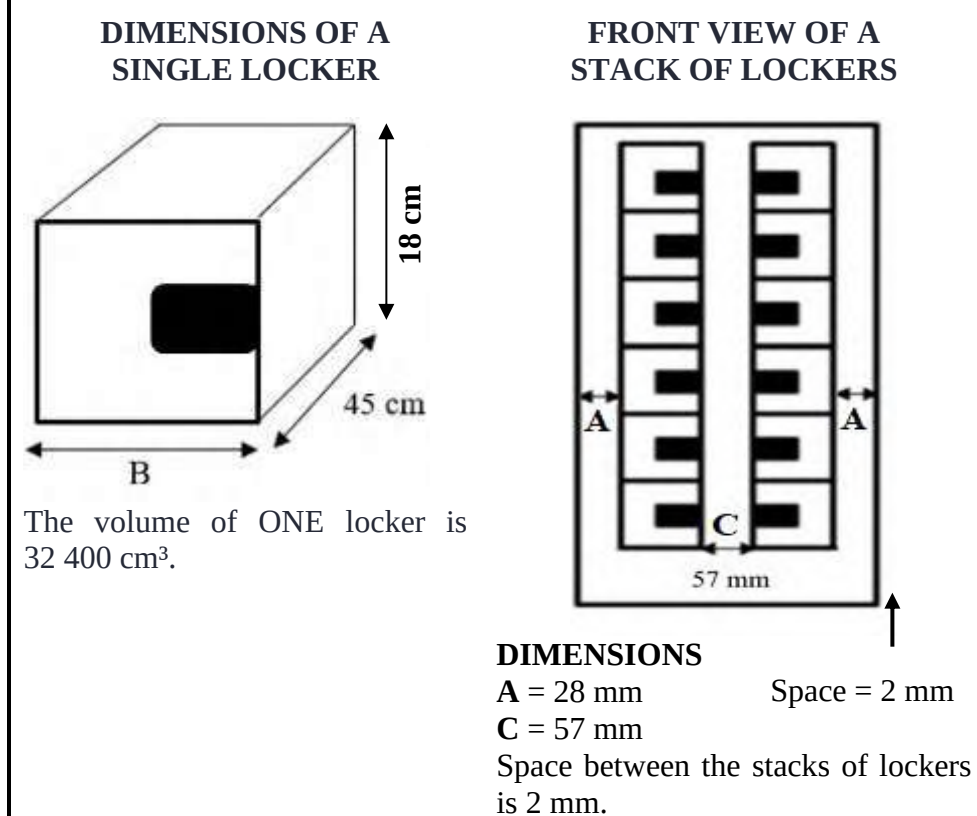


Use the information above to answer the questions that follow.

4.3.1 Determine the total number of individual lockers in a set of lockers. (2)

4.3.2 State ONE use of the lockers. (2)

4.3.3 A single locker has a front width, **B**, a side length of 45 cm and a height of 18 cm, as shown in the diagram below.



(a) Determine **B**, the front width of a single locker.

You may use the following formula:

Volume of a rectangular prism = length × width × height (3)

(b) Hence, calculate the total length of the set of lockers. (6)

[33]

QUESTION 5

5.1

An international surfer studied the tide timetable and the sunrise and sunset times of Huntington Beach for the period 2 February to 9 February 2025.

TABLE 1: TIDE TIMETABLE OF HUNTINGTON BEACH FOR THE PERIOD 2 FEBRUARY TO 9 FEBRUARY 2025

HIGH TIDE								
Date	2 Feb.	3 Feb.	4 Feb.	5 Feb.	6 Feb.	7 Feb.	8 Feb.	9 Feb.
AM	11:25	0:25	1:13	2:12	3:24	4:37	5:41	6:35
H	1,83 m	1,96 m	1,99 m	2,01 m	2,04 m	2,1 m	2,19 m	2,27 m
PM		12:29	14:04	16:33	18:31	19:26	20:02	20:33
H		1,56 m	1,32 m	1,25 m	1,34 m	1,46 m	1,55 m	1,62 m

LOW TIDE								
Date	2 Feb.	3 Feb.	4 Feb.	5 Feb.	6 Feb.	7 Feb.	8 Feb.	9 Feb.
AM	5:36	6:48	8:18	10:01	11:26	12:28		0:23
H	0,82 m	0,8 m	0,75 m	0,63 m	0,46 m	0,29 m		1,16 m
PM	17:47	18:22	19:03	20:05	21:48	23:19	13:16	13:56
H	0,52 m	0,74 m	0,96 m	1,14 m	1,24 m	1,23 m	0,17 m	0,09 m

NOTE:

AM and PM: time of day

H: height of the waves

TABLE 2: SUNRISE AND SUNSET

Date	2 Feb.	3 Feb.	4 Feb.	5 Feb.	6 Feb.	7 Feb.	8 Feb.	9 Feb.
	6:47 a.m.	6:46 a.m.	6:45 a.m.	6:44 a.m.	6:43 a.m.	6:43 a.m.	6:42 a.m.	6:41 a.m.
	5:24 p.m.	5:25 p.m.	5:26 p.m.	5:27 p.m.	5:28 p.m.	5:29 p.m.	5:30 p.m.	5:31 p.m.

[Adapted from www.tide-forecast.com/tide/Huntington-Beach/tide-times]

Use the information above to answer the questions that follow.

- 5.1.1 Write down the date when only one high tide occurred. (2)
- 5.1.2 Calculate the difference between the height of the highest wave and the height of the lowest wave. (3)
- 5.1.3 A surfer stated that on 3 February, the time from sunrise to sunset will be more than 10 hours 48 minutes. (4)
- Verify, by means of calculations, whether he is CORRECT.

- 5.2 Michael McKay is going to a surf competition at Huntington Beach.
 The map below shows the area surrounding Huntington Beach.



Use the information above to answer the questions that follow.

- 5.2.1 Write down the number of airports on this map. (2)
- 5.2.2 The measured direct distance from Beverley Hills to Huntington Beach is 65 mm. (2)
- (a) Convert the given scale to kilometres. (2)
- (b) Michael stated that the real direct distance from Beverley Hills to Huntington Beach is more than 55 km. (4)
- Using the measured distance and the converted scale, verify whether his statement is VALID.

- 5.3 Michael McKay has booked an Uber to travel the 21,3 miles from the Starlite Motel (where he is staying) to Huntington Beach.

The information below shows the travelling time and the fuel consumption for the Uber vehicle that he booked.

UBER APP SCREEN	FUEL CONSUMPTION TABLE	
		
	CITY	HIGHWAY
	SUV	25 mpg
	CAR	28 mpg
	[Source: www.indyautoman.com]	
	NOTE: • mpg = miles per gallon • Cost of fuel is \$4,757 per gallon • SUV (sports utility vehicle)	
	[Adapted from m.uber.com]	

Use the information above to answer the questions that follow.

- 5.3.1 Calculate, in miles per hour, the average speed maintained by the Uber.

You may use the following formula:

$$\text{Distance} = \text{Speed} \times \text{Time} \quad (5)$$

- 5.3.2 The Uber driver uses an SUV and stated that the cost of fuel used for this trip within the city would be more than \$4,00.

Show, by means of calculations, whether his statement is CORRECT. (6)
 [28]

TOTAL: 150

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Candidate Barcode Label

Senior Certificate/National Senior Certificate – Grade 12 – May/June 2026 Confidential

CENTRE NUMBER								
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[illegible]

DATE	
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BOOK NUMBER		OF		BOOKS
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SUBJECT CODE	M	L	I	T	
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PAPER NUMBER	2
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SUBJECT NAME	MATHEMATICAL LITERACY
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[illegible][illegible]

CONTROLLED AND CERTIFIED CORRECT (SURNAME AND INITIALS OF EA)		READ INSTRUCTIONS ON THE NEXT PAGE.
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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. Write the answers 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

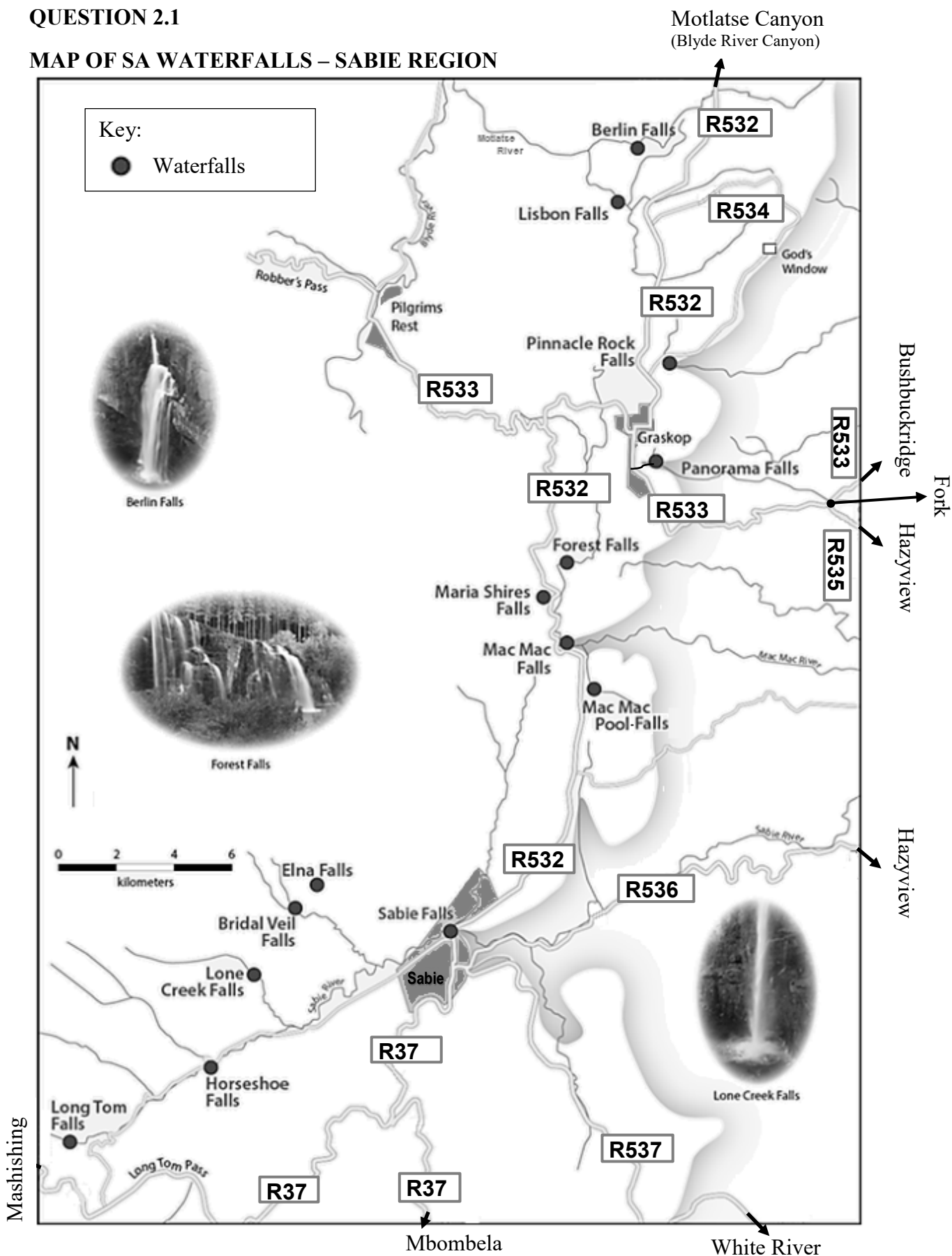
	Solution	Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)
1.2.1		(2)
1.2.2		(3)
1.2.3		(2)
1.2.4		(2)
1.2.5		(2)
1.3.1		(2)
1.3.2		(2)
1.3.3		(2)
1.3.4		(3)
		[30]

QUESTION 2

ANNEXURE A

QUESTION 2.1

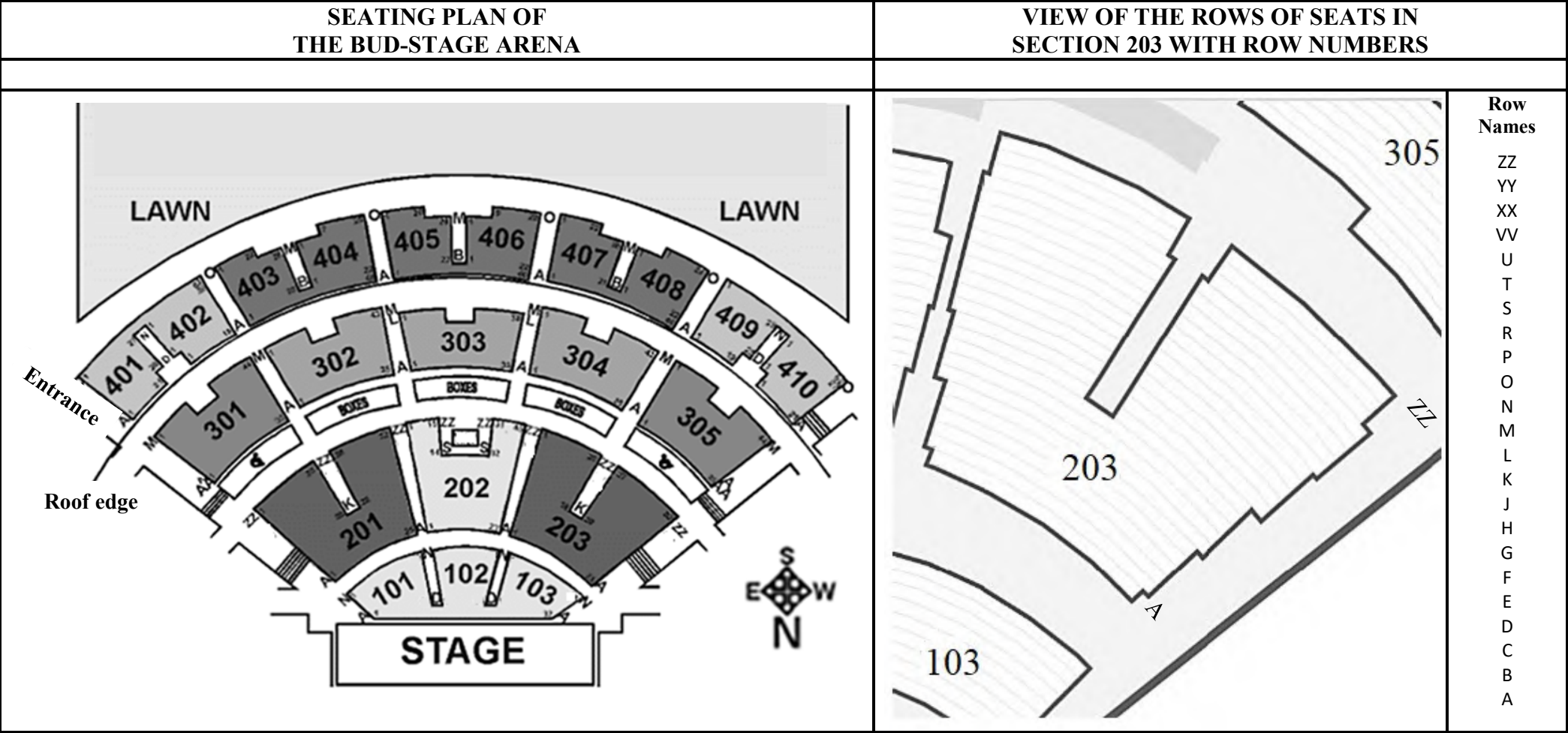
MAP OF SA WATERFALLS – SABIE REGION



	Solution	Marks
2.1.1		(2)
2.1.2		(2)
2.1.3		(2)
2.1.4		(2)
2.1.5		(5)

ANNEXURE B

QUESTION 2.2



[Adapted from [//www.canadianamphitheatre.net/seating-chart](http://www.canadianamphitheatre.net/seating-chart)]

	Solution	Marks
2.2.1		(2)
2.2.2		(3)
2.2.3		(2)
2.2.4		(4)
2.2.5		(4)
		[28]

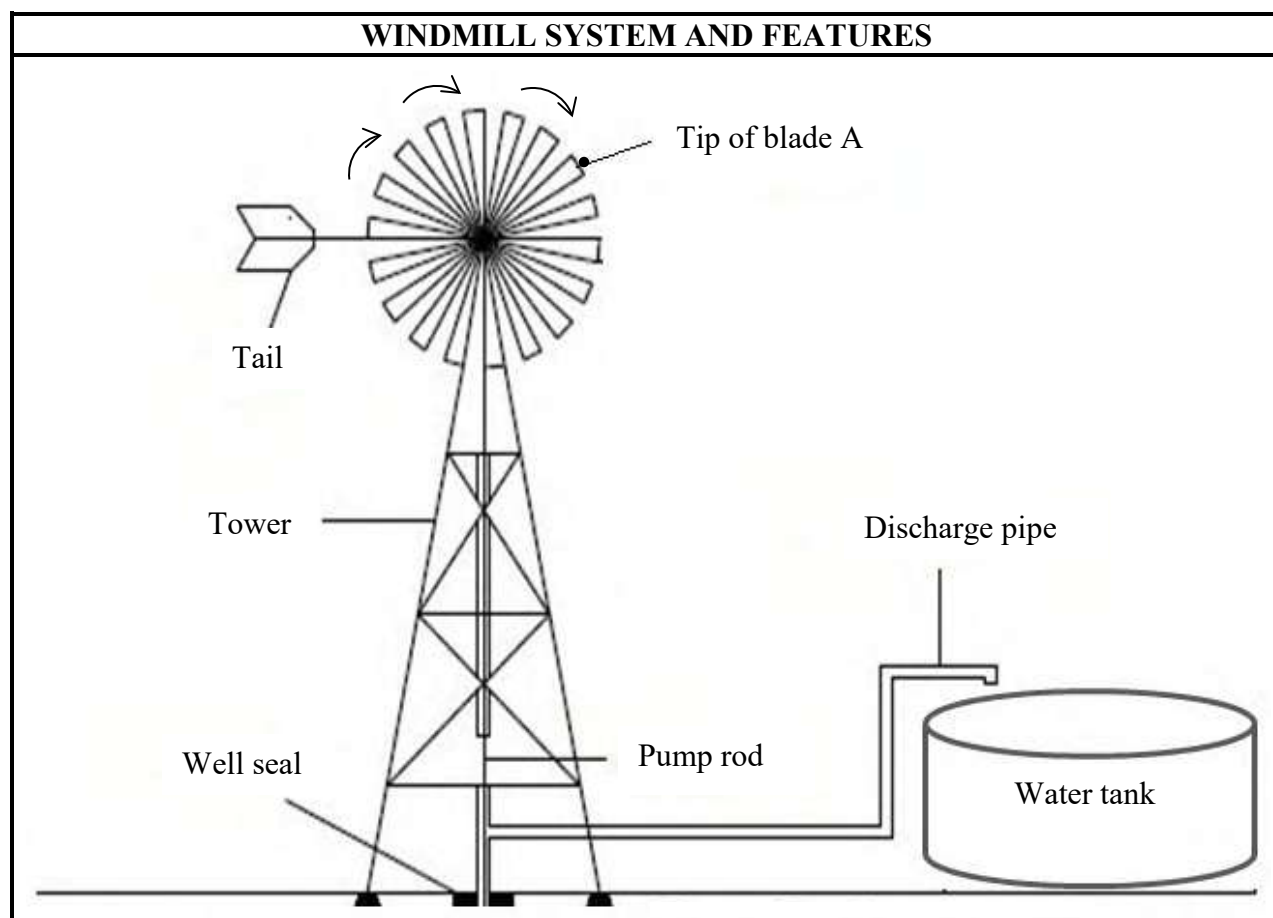
QUESTION 3

	Solution	Marks
3.1.1		(2)
3.1.2		(5)
3.1.3		(5)

KEEP THIS PAGE BLANK.

ANNEXURE C

QUESTION 3.2



[Adapted from [researchgate.net](https://www.researchgate.net) & www.vedantu.com]

NOTE:

↪ Rotation of the blades when the wind blows

	Solution	Marks
3.2.1		(3)
3.2.2		(3)
3.2.3		(2)
3.2.4(a)		(3)
3.2.4(b)		(8)
		[31]

QUESTION 4

	Solution	Marks
4.1.1		(2)
4.1.2		(4)
4.1.3		(8)

	Solution	Marks
4.2		(6)
4.3.1		(2)
4.3.2		(2)
4.3.3(a)		(3)
4.3.3(b)		(6)
		[33]

QUESTION 5

	Solution	Marks
5.1.1		(2)
5.1.2		(3)
5.1.3		(4)
5.2.1		(2)
5.2.2(a)		(2)

	Solution	Marks
5.2.2(b)		(4)
5.3.1		(5)
5.3.2		(6)
		[28]

TOTAL: 150*Please turn over*

[illegible]

[illegible]

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



basic education

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

MATHEMATICAL LITERACY P2/WISKUNDIGE GELETTERDHEID V2

MAY/JUNE/MEI/JUNIE 2026

MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 150

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

**These marking guidelines consist of 16 pages./
Hierdie nasienriglyne bestaan uit 16 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.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra item presented.
- Rounding is an independent mark.
- General principle of marking, if the candidate makes one mistake one mark is deducted.
- A conclusion mark can only be given if $\frac{1}{3}$ of the total marks for the sub-question have been awarded.
- 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 egter op by die tweede berekeningsfout.
- Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart aanbied en ekstra antwoorde gee, penaliseer vir elke ekstra item.
- Afronding tel as 'n afsonderlike punt.
- Die algemene beginsel van nasien is, as 'n leerder een fout maak, word een punt afgetrek.
- 'n Gevolgtrekkingspunt kan slegs gegee word indien $\frac{1}{3}$ van die totale punte vir die subvraag toegeken is.
- Geen penalisering vir afronding (NPR) nie as die eerste desimaal korrek is.

QUESTION/VRAAG 1 [30 MARKS/30 PUNTE] ANSWER ONLY FULL MARKS			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
1.1.1	✓✓ A Metric system/Metrieke stelsel	2A correct concept (2)	M L1 E
1.1.2	✓✓ A Strip chart/Strookkaart	2A correct concept (2)	MP L1 E
1.1.3	✓✓ A Layout plan/Uitlegplan	2A correct concept (2)	MP L1 E
1.1.4	✓✓ A Probability/Waarskynlikheid	2A correct concept (2)	P L1 E
1.1.5	✓✓ A Diameter / Middellyn	2A correct concept (2)	M L1 E
1.2.1	7 ✓✓ RT	2RT reading from table (2)	M L1 E
1.2.2	50% ✓✓ RT Saturday/Saterdag OR/OF SAT./SA. ✓RT	2RT percentage 1RT day (3)	P L1 E

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
1.2.3	✓✓RT Wednesday/ <i>Woensdag</i> OR/OF WED. / <i>WO</i>	2RT reading from table (2)	M L1 E
1.2.4	✓MA 1,3 mm + 1,4 mm + 18 mm = 20,7 mm ✓A	1MA addition of values 1A simplification (2)	M L1 E
1.2.5	✓A ✓A Seven minutes to three in the afternoon <i>Sewe minute voor drie in die middag</i> ✓A OR/OF Fifty-three minutes past two p.m. ✓A <i>Drie en vyftig minute na twee n.m.</i>	1A correct words 1A afternoon (2)	M L1 E
1.3.1	✓✓A Elevation map <i>Hoogtekaart</i>	2A correct concept (2)	MP L1 E
1.3.2	1 750 m ✓✓RT	2RT reading from map [Accept answers more than 1700 m but less than 1780 m] (2)	MP L1 E
1.3.3	D ✓✓RT	2RT reading from map (2)	MP L1 E
1.3.4	✓RT ✓RT 16 km – 5 km = 11 km ✓A	1RT 16 km 1RT 5 km 1A simplification [Accept 10,8 – 11,2] (3)	MP L1 M
		[30]	

QUESTION 2 [28 MARKS/28 PUNTE]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.1.1	✓✓ A Bar scale/Staafskaal	2A bar scale (2)	MP L1 E
2.1.2	R37 ✓✓ RT	2RT correct number (2)	MP L1 E
2.1.3	Hazyview ✓✓ A	2A correct destination (2)	MP L2 M
2.1.4	14 ✓✓ RT	2RT correct number (2)	MP L1 M
2.1.5	✓A Scale/Skaal 33 mm = 6 km ✓A Map distance/Kaartafstand 83 mm Real distance/Werklike afstand $= \frac{83}{33} \times 6 \text{ km}$ ✓MA $= 15,09... \text{ km}$ ✓CA $\approx 15 \text{ km}$ ✓R ✓A OR/OF Scale/Skaal 11 mm = 2 km Map distance/Kaartafstand 83 mm ✓A Real distance/Werklike afstand $= \frac{83}{11} \times 2 \text{ km}$ ✓MA $= 15,09... \text{ km}$ ✓CA $\approx 15 \text{ km}$ ✓R ✓A OR/OF 3,3 cm = 6 km 3,3 cm = 600 000 cm 1 : 181 818,18181 ✓A ✓MA $8,1 \text{ cm} \times 181,818181 = 1\,472\,727,272 \text{ cm}$ $= 14,7 \text{ km}$ ✓CA $\approx 15 \text{ km}$ ✓R	1A measured scale 1A map distance 1MA using the ratio 1CA simplification 1R correct rounding OR/OF 1A measured scale 1A map distance 1MA using the ratio 1CA simplification 1R correct rounding OR/OF 1A measured scale 1A map distance 1MA using the ratio 1CA simplification 1R correct rounding (5)	MP L3 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
2.2.1	11 ✓✓ A	2A correct number (2)	MP L1 E
2.2.2	Number on lawn/Getal op grasperk ✓ MA ✓ RT = 16 000 – (5 500 + 3 500) = 7 000 ✓ CA	1MA subtracting 1RT correct values (at least 2) 1CA simplification (3)	MP L2 E
2.2.3	NW OR/OF North-west/Noordwes ✓✓ A	2A correct direction (2)	MP L2 M
2.2.4	Distance/Afstand ✓ RT = $\frac{100}{3} \times 91,44$ cm ✓ MA = 3 048 cm ✓ CA = 30,48 m ✓ C OR/OF 3 feet = 91,44 cm 1 foot = 30,48 cm ✓ RT 100 feet = $100 \times 30,48$ cm ✓ MA = 3 048 cm ✓ CA = 30,48 m ✓ C	1RT 100 ft 1MA using the ratio 1CA simplification 1C conversion OR/OF 1RT 100 ft 1MA using the ratio 1CA simplification 1C conversion (4)	MP L2 D
2.2.5	Last row in ZZ/Laaste ry in ZZ ✓ MA = 20 + 23 ✓ RT = 43 ✓ CA INVALID / NIE GELDIG NIE ✓ O	1MA addition 1RT 23 1CA simplification 1O verification (4)	MP L4 M
		[28]	

QUESTION 3 [31 MARKS]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.1.1	$D = (90 \text{ m} - 40,3 \text{ m}) \div 2$ $= 24,85 \text{ m} \quad \checkmark \text{CA}$	1MA subtract and dividing by 2 1CA simplification AO (2)	M L2 E
3.1.2	Area of one penalty box/Opp. van een doelgebied $= 40,3 \text{ m} \times 16,5 \text{ m} \quad \checkmark \text{SF}$ $= 664,95 \text{ m}^2 \quad \checkmark \text{A}$ Area of soccer field/Oppervlakte van sokkerveld $= 120 \text{ m} \times 90 \text{ m}$ $= 10\,800 \text{ m}^2 \quad \checkmark \text{A}$ Percentage/Persentasie = $\frac{664,95}{10\,800} \times 100\%$ $\checkmark \text{MCA}$ $= 6,156944 \% \quad \checkmark \text{CA}$ OR/OF Area of penalty box ÷ area of soccer field/ Opp. van doelgebied ÷ opp. van sokkerveld $= \frac{40,3 \text{ m}}{120 \text{ m}} \times \frac{16,5 \text{ m}}{90 \text{ m}} \quad \checkmark \text{SF}$ $\quad \checkmark \text{A} \quad \checkmark \text{A}$ Percentage/Persentasie = $0,335833... \times 0,18333 \times 100\%$ $= 6,156944\% \quad \checkmark \text{CA}$	1SF substitution 1A simplification 1A simplification 1MCA correct fraction 1CA simplification OR/OF 1MCA correct fraction 1SF substitution 1A simplification 1A simplification 1CA simplification NPR (5)	M L3 M
3.1.3	$\text{Perimeter/Omtrek} = 2 \times 120 \text{ m} + 2 \times 90 \text{ m}$ $= 420 \text{ m} \quad \checkmark \text{A}$ $\text{Distance ran/Afstand afgelê} = 10 \times 420 \text{ m} = 4\,200 \text{ m}$ $= 4,2 \text{ km} \quad \checkmark \text{C}$ INVALID/NIE GELDIG NIE. \quad \checkmark O OR/OF	1SF substitution in formula 1A simplification 1CA multiplying correct values 1C conversion 1O conclusion OR/OF	M L4 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
	Length distance for 10 laps/<i>Lengte-afstand vir 10 rondtes</i> $= 120 \text{ m} \times 2 \times 10$ $= 2\,400 \text{ m}$ ✓ A Width distance for 10 laps/<i>Breedte-afstand vir 10 rondtes</i> $= 90 \text{ m} \times 2 \times 10$ $= 1\,800 \text{ m}$ ✓ A Total distance/<i>Totale afstand</i> $= 2\,400 \text{ m} + 1\,800 \text{ m}$ $= 4\,200 \text{ m}$ ✓ CA Distance in km/<i>Afstand in km</i> $= 4\,200 \div 1\,000 = 4,2$ ^{✓ C} km INVALID/NIE GELDIG NIE ✓ O OR/OF ✓ SF Perimeter/<i>Omtrek</i> $= 2 \times 120 \text{ m} + 2 \times 90 \text{ m}$ $= 420 \text{ m}$ ✓ A Conversion to m/<i>Herleiding na m:</i> $4 \text{ km} = 4\,000 \text{ m}$ ✓ C Distance for 1 lap/<i>Afstand vir 1 rondte</i> $= 4\,000 \text{ m} \div 10$ $= 400 \text{ m}$ ✓ CA INVALID/NIE GELDIG NIE ✓ O	1A correct values for length 1A correct values for width 1CA simplification 1C conversion 1O conclusion OR/OF 1SF substitution in formula 1A simplification 1C conversion 1CA dividing correct values 1O conclusion (5)	
3.2.1	$P = \frac{1}{18}$ ✓ A $\approx 0,056$ ✓ R	1A numerator 1A denominator 1R correctly rounded (3)	P L2 E
3.2.2	Diameter/<i>Middellyn</i> $= 1,2 \text{ m} \times 2 = 2,4 \text{ m}$ ✓ MA Total distance/<i>Totale afstand</i> $= 3,142 \times 2,4 \text{ m}$ ✓ SF $= 7,5408 \text{ m}$ ✓ CA OR/OF ✓ MA Total distance/<i>Totale afstand</i> $= 3,142 \times 1,2 \text{ m} \times 2$ ✓ SF $= 7,5408 \text{ m}$ ✓ CA	1MA calculate diameter 1SF correct substitution 1CA simplification OR/OF 1MA calculate diameter 1SF correct substitution 1CA simplification (3)	M L2 M
3.2.3	Direct/<i>Direkte</i> ✓✓ A	2A direct (2)	M L1 E

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
3.2.4 (a)	$\text{Radius} = 5 \text{ m} \div 2$ $= 2,5 \text{ m} \checkmark \text{MA}$ $\text{Volume} = 3,142 \times (2,5 \text{ m})^2 \times 0,21 \text{ m}$ $= 4,123875 \text{ m}^3$	1MA radius 1SF substitution of radius 1C conversion to metres (3)	M L2 M
3.2.4 (b)	$\text{Litres per minute} = 5 \times 3,78541178 \checkmark \text{MA}$ $= 18,9270589 \ell \checkmark \text{A}$ $\text{Volume} = 4,123875 \text{ m}^3 \times 1\,000 = 4\,123,875 \ell \checkmark \text{C}$ $\text{Number of minutes/Aantal minute} = \frac{4\,123,875 \ell}{18,9270589 \ell/\text{m}} \checkmark \text{MCA}$ $= 217,8825 \dots \text{min} \checkmark \text{CA}$ $\text{Time/Tyd} = 217,8825 \dots \div 60 \checkmark \text{MCA}$ $= 3,63 \dots \checkmark \text{CA}$ $= 3 \text{ hours/uur } 38 \text{ minutes/minute} \checkmark \text{R}$ OR/OF $\text{Volume} = 4,123875 \text{ m}^3 \times 1\,000 = 4\,123,875 \ell \checkmark \text{C}$ $\text{Number of gallons/Aantal gellings} = \frac{4\,123,875}{3,78541178} \checkmark \text{MCA}$ $= 1\,089,413844 \checkmark \text{CA}$ $\text{Number of minutes/Aantal minute} = 1\,089,413844 \div 5 \checkmark \text{MA}$ $= 217,882 \dots \checkmark \text{CA}$ $\checkmark \text{MCA}$ $\text{Time in hours and min/Tyd in ure en min} = 217,882 \div 60$ $= 3,63 \dots \checkmark \text{CA}$ $= 3 \text{ hours/uur } 38 \text{ minutes/minute} \checkmark \text{R}$ OR/OF $\text{Number of litres/min/Aantal liters/min}$ $\checkmark \text{MA}$ $= 5 \times 3,7841178 \ell = 18,9270589 \ell \checkmark \text{A}$ $\text{Volume} = 18,9270589 \ell \div 1000 = 0,0189271 \text{ m}^3 \checkmark \text{C}$ $\text{Number of minutes/Aantal minute} = \frac{4\,123,875}{0,0189271} \checkmark \text{MCA}$ $= 217,8825047 \checkmark \text{CA}$ $\text{Time/Tyd} = 217,8825047 \div 60 \checkmark \text{MCA}$ $\checkmark \text{CA} \quad \checkmark \text{R}$ $= 3 \text{ hours/uur } 38 \text{ minutes/minute}$	1MA multiplication 1A simplification litres 1C conversion 1MCA division 1CA simplification 1MCA divide minutes by 60 1CA simplification 1R rounding of minutes OR/OF 1C conversion 1MCA dividing 1CA simplification 1MA division by 5 1CA simplification 1MCA divide minutes by 60 1CA simplification 1R rounding of minutes OR/OF 1MA multiplication 1A simplification litres 1C conversion 1MCA division 1CA simplification 1MCA divide minutes by 60 1CA simplification 1R rounding of minutes (8)	M L3 D
			[31]

QUESTION 4 [33 MARKS]			
Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
4.1.1	$\text{Radius} = \frac{20}{2} \text{ mm} \quad \checkmark \text{MA}$ $= 10 \text{ mm} \quad \checkmark \text{A} \quad \textbf{OR/OF} \quad 1 \text{ cm}$	1MA diameter by 2 1A simplification AO (2)	M L1 E
4.1.2	$\text{Height/Hoogte} = 309 \text{ mm} + 2(40 \text{ mm}) \quad \checkmark \text{C} \quad \checkmark \text{MA}$ $= 389 \text{ mm} \quad \checkmark \text{CA}$ $\approx 400 \text{ mm} \quad \checkmark \text{R}$	1C convert to mm 1MA addition 1CA simplification 1R rounding (4)	M L2 M
4.1.3	Total surface area ONE cork /Totale buite opp. EEN proppe $= 2 \times 3,142 \times (10 \text{ mm})^2 + 2 \times 3,142 \times 10 \text{ mm} \times 43 \text{ mm} \quad \checkmark \text{SF}$ $= 628,4 \text{ mm}^2 + 2\,702,12 \text{ mm}^2$ $= 3\,330,52 \text{ mm}^2 \quad \checkmark \text{CA}$ TSA for 3 layers on 53 corks /BO vir 3 lae op 53 proppe $= 3\,330,52 \text{ mm}^2 \times 53 \times 3 \quad \checkmark \text{MCA} \quad \checkmark \text{MCA}$ $= 529\,552,68 \text{ mm}^2$ Convert to m^2 /Herlei na m^2 $= 529\,552,68 \text{ mm}^2 \div 1\,000\,000 \quad \checkmark \text{C}$ $= 0,52955... \text{ m}^2$ Paint needed/Verf benodig : $\frac{0,52955 \text{ m}^2}{3 \text{ m}^2} \times 1 = 0,176... \text{ l} \quad \checkmark \text{MCA}$ $\approx 0,18 \text{ l}$ $\therefore 0,18 \text{ l} \times 1\,000 = 180 \text{ ml} \quad \checkmark \text{C}$ Total cost/Totale koste $= 2 \times \text{R}55,00$ $= \text{R}110,00 \quad \checkmark \text{CA}$ OR/OF	CA from 4.1.1 1SF substitution in formula 1CA simplification 1MCA multiply by 53 1MCA multiply by 3 1C conversion to m^2 1MCA divide by 3 to get the number of litres 1C conversion to ml 1CA simplification OR/OF	M/F L3 D

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
	Total surface area ONE cork /Totale buite opp. EEN prop ✓SF $SA = 2 \times 3,142 \times (1 \text{ cm})^2 + 2 \times 3,142 \times 1 \text{ cm} \times 4,3 \text{ cm}$ $= 33,3052 \text{ cm}^2 \quad \checkmark \text{ CA}$ SA of 53 corks/BO van 53 proppe = $33,3052 \text{ cm}^2 \times 53$ = 1 765,1756 ✓MC Convert to m/Herlei na m = $\frac{1\,765,1756}{10\,000}$ = 0,17651756 m² ✓C Paint needed(1 coat)/Verf benodig(1 laag) 3 m² = 1 litre 0,17651756 m² = x litres $\frac{3x}{3} = \frac{0,17651756}{3}$ x = 0,0588391 litres ✓MCA Convert to mℓ/Herlei na mℓ = $0,0588391 \times 1\,000$ = 58,8391 ✓C Total amount of paint/Totale hoeveelh. verf = $58,8391 \times 3$ = 176,51756 mℓ ✓MCA Number of cans of paint/Aantal blikke verf = $176,51756 \text{ mℓ} \div 125 \text{ mℓ}$ = 1,41214 ∴ Total cost/Totale koste = $2 \times \text{R}55$ = R110 ✓CA OR/OF Total surface area ONE cork /Totale buite opp. EEN prop ✓SF = $[2 \times 3,142 \times (0,01 \text{ m})^2] + 2 \times 3,142 \times 0,01 \text{ m} \times 0,043 \text{ m}$ = 0,00333052 m² ✓CA TSA 53 corks/TBO 53 proppe = $0,00333052 \text{ m}^2 \times 53 \times 3$ = 0,52955268 m² ✓CA ✓MCA Number of litres/Aantal liters = $\frac{0,52955268 \text{ m}^2}{3}$ ✓MCA = 0,17651756 litres × 1 000 = 176,51756 mℓ ✓C Number of cans/Aantal blikke = $\frac{176,51756 \text{ mℓ}}{125 \text{ mℓ}}$ = 1,412 Cost/Koste = $2 \times \text{R}55$ = R110 ✓CA OR/OF	1SF substitution in formula 1CA simplification 1MCA multiply by 53 1C conversion to m² 1MCA divide by 3 to get the number of litres 1C conversion to mℓ 1MCA multiply 3 1CA simplification OR/OF 1SF substitution in formula 1C conversion to m 1CA simplification 1MCA multiply by 53 and 3 1CA simplification 1MCA divide by 3 to get the number of litres 1C conversion to mℓ 1CA simplification OR/OF	

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
	Total surface area ONE cork /Totale buite opp. EEN prop $\checkmark$SF $= 2 \times 3,142 \times (10 \text{ mm})^2 + 2 \times 3,142 \times 10 \text{ mm} \times 43 \text{ mm}$ $= 628,4 \text{ mm}^2 + 2\,702,12 \text{ mm}^2$ $= 3\,330,52 \text{ mm}^2 \checkmark$CA $= 3\,330,52 \div (1\,000)^2 = 0,00333052 \text{ m}^2 \checkmark$C TSA for 3 layers/TBO vir 3 lae $= 0,00333052 \text{ m}^2 \times 3$ $= 0,009992 \text{ m}^2 \checkmark$MCA TSA(53 corks)/TBO(53 proppe) $= 0,009992 \text{ m}^2 \times 53$ $= 0,52955 \dots \text{ m}^2 \checkmark$MCA Paint/Verf: 1 ℓ covers/dek 3 m^2 1 tin/blik = 125 ml covers/dek $\frac{125 \text{ ml}}{1\,000 \text{ ml}} \times 3 \text{ m}^2 \checkmark$C $= 0,375 \text{ m}^2 \checkmark$MCA Number of cans/Aantal blikke $= \frac{0,52955 \text{ m}^2}{0,375 \text{ m}^2} = 1,41 \dots$ Total cost/Totale koste $= 2 \times \text{R}55,00$ $= \text{R}110,00 \checkmark$CA OR/OF Radius $= 10 \text{ mm} = \frac{10}{1\,000} \text{ m} = 0,01 \text{ m}$ Height/Hoogte $= 43 \text{ mm} = \frac{43}{1\,000} \text{ m} = 0,043 \text{ m} \checkmark$C Total Surface Area/Buite-oppervlakte $\checkmark$SF $= 2 \times 3,142 \times (0,01)^2 + 2 \times 3,142 \times 0,01 \text{ m} \times 0,043 \text{ m}$ $= 0,00333052 \text{ m}^2 \checkmark$CA Spread rate/Spreikoers $3 \text{ m}^2 / \ell$ Number of litre/Aantal liters $= \frac{0,00333052 \text{ m}^2}{3 \text{ m}^2} \times 1 \checkmark$MCA $= 0,0011101733 \ell$ 3 layers/3 lae $= 0,0011101733 \text{ litres} \times 3 \checkmark$MCA $= 0,0033305199 \text{ litres}$ For 53 corks/Vir 53 proppe $\checkmark$C $= 0,0033305199 \times 1000 \text{ ml} \times 53 \checkmark$MCA $= 176,5176 \text{ ml}$ Total cost/Totale koste $= 2 \times \text{R}55$ $= \text{R}110 \checkmark$CA	1SF substitution in formula 1CA simplification 1C conversion to m^2 1MCA multiply by 3 1MCA multiply by 53 1C conversion ml to ℓ 1MCA coverage for 3 m^2 1CA simplification OR/OF 1C conversion to m 1SF substitution in formula 1CA simplification 1MCA divide by 3 to get the number of litres 1MCA multiply by 3 1C conversion to ml 1MCA multiply by 53 1CA simplification	(8)

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
4.2	Inside width of board/<i>Binnebreedte van bord</i> $= 37,2 \text{ cm} - 2(4 \text{ cm}) \quad \checkmark \text{MA}$ $= 29,2 \text{ cm} \quad \checkmark \text{CA}$ $= 292 \text{ mm} \quad \checkmark \text{C}$ Length of 4 patterns/<i>Lengte van 4 patrone</i> $= (43 \text{ mm} + 20 \text{ mm}) \times 4 \quad \checkmark \text{MA}$ $= 63 \text{ mm} \times 4$ $= 252 \text{ mm} \quad \checkmark \text{CA}$ INVALID/NIE GELDIG NIE $\checkmark \text{O}$ OR/OF Inside width of board/<i>Binnebreedte van bord</i> $= 37,2 \text{ cm} - 2(4 \text{ cm}) \quad \checkmark \text{MA}$ $= 29,2 \text{ cm} \quad \checkmark \text{CA}$ Length of pattern/<i>Lengte van patroon</i> $= 43 \text{ mm} + 20 \text{ mm} = 63 \text{ mm}$ $= 6,3 \text{ cm} \quad \checkmark \text{C}$ Number of repeats needed to complete the row/ <i>Getal patrone nodig om die ry te voltooi</i> $= \frac{29,2 \text{ cm}}{6,3 \text{ cm}} \quad \checkmark \text{MCA}$ $= 4,63 \quad \checkmark \text{CA}$ INVALID/NIE GELDIG NIE. $\checkmark \text{O}$ OR/OF $\checkmark \text{MA}$ Board/<i>Bord</i>: $372 \text{ mm} - 80 \text{ mm} = 292 \text{ mm} \quad \checkmark \text{CA}$ Space needed for exactly 4 repeats/<i>Ruimte benodig om presies 4 keer te herhaal</i> $\checkmark \text{MCA}$ $= 292 \text{ mm} \div 4 = 73 \text{ mm} \quad \checkmark \text{CA}$ Each pattern/<i>Elke patroon</i> $= 43 \text{ mm} + 20 \text{ mm}$ $= 63 \text{ mm} \quad \checkmark \text{A}$ INVALID/NIE GELDIG NIE. $\checkmark \text{O}$	1MA subtraction 1CA simplification 1C conversion to mm 1MA multiplying by pattern 1CA simplification 1O opinion OR/OF 1MA subtraction 1CA simplification 1C conversion to cm 1MCA dividing by 6,3 1CA simplification 1O conclusion OR/OF 1MA subtraction 1CA simplification 1MCA dividing by 4 1CA simplification 1A simplification 1O conclusion (6)	MP L4 M
4.3.1	Number of lockers/<i>Aantal sluitkassies</i> $= 12 \times 5 \quad \checkmark \text{MA}$ $= 60 \quad \checkmark \text{A}$ OR/OF Number of lockers/<i>Aantal sluitkassies</i> $= 6 \times 10 \quad \checkmark \text{MA}$ $= 60 \quad \checkmark \text{A}$	1MA multiplication 1A correct answer OR/OF 1MA multiplication 1A correct answer AO (2)	MP L1 E

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L															
4.3.2	To store extra books/lunch boxes/small sport bags/ extra clothes or shoes/ Keep learners' possessions safe. ✓✓O <i>Om ekstra boeke/kosblikke/klein sportsakke/ekstra klere of skoene te stoor/ Hou besittings van leerders veilig.</i>	2O reason (ACCEPT ANY ONE) (2)	MP L4 E															
4.3.3 (a)	Volume = L × w × h/Volume = L × b × h ✓SF 32 400 cm ² = 45 cm × B × 18 cm B = $\frac{32\,400\text{ cm}^3}{45\text{ cm} \times 18\text{ cm}}$ ✓MA = 40 cm ✓CA	1SF substitution 1MA changing subj of formula 1CA simplification (3)	M L2 M															
4.3.3 (b)	Total length of one stack/Totale lengte van een stapel ✓MCA ✓C (2 × 40 cm) + 5,7 cm + (2,8 cm × 2) = 91,3 cm ✓CA Total length of a set/Totale lengte van 'n stel ✓MCA ✓MA (91,3 cm × 5) + (4 × 0,2 cm) = 456,5 cm + 0,8 cm = 457,3 cm ✓CA OR/OF Length of one stack/ Lengte van een stapel ✓C ✓MCA = 2(400 mm) + 2(28 mm) + 57 mm = 913 mm ✓CA Total length of a set/Totale lengte van 'n stel = (913 mm × 5) + (4 × 2 mm) ✓MCA ✓MA = 4 565 mm + 8 mm = 4 573 mm ✓CA OR/OF Total lengths/Totale lengtes <table><tr><td></td><td>In cm</td><td>In mm</td></tr><tr><td>A:</td><td>2,8 × 10 ✓C</td><td>28 × 10 ✓MCA</td></tr><tr><td>B:</td><td>40 × 10 ✓MCA</td><td>400 × 10 ✓C</td></tr><tr><td>C:</td><td>5,7 × 5 ✓MCA</td><td>57 × 5 ✓MCA</td></tr><tr><td>Space/Spasie:</td><td>0,2 × 4 ✓MA</td><td>2 × 4 ✓MA</td></tr></table> ✓MCA Total/Totaal = 400 cm + 28 cm + 28,5 cm + 0,8 cm = 457,3 cm ✓CA OR/OF ✓MCA Total/Totaal = 4000 mm + 280 mm + 285 mm + 8 mm = 4 573 mm ✓CA		In cm	In mm	A:	2,8 × 10 ✓C	28 × 10 ✓MCA	B:	40 × 10 ✓MCA	400 × 10 ✓C	C:	5,7 × 5 ✓MCA	57 × 5 ✓MCA	Space/Spasie:	0,2 × 4 ✓MA	2 × 4 ✓MA	CA from 4.3.3 (a) 1MCA multiply by 2 1C conversion to cm 1CA length in cm 1MCA multiplication 1MA adding in between spaces 1CA simplification OR/OF 1C conversion to mm 1MCA multiply by 2 1CA length in cm 1MCA multiplication 1MA adding in between spaces 1CA simplification OR/OF 1C conversion to cm 1MCA multiply by 10 1MCA multiply by 5 1MA spaces in between 1MCA adding 1CA simplification OR/OF 1MCA adding 1CA simplification (6)	M L2 D
	In cm	In mm																
A:	2,8 × 10 ✓C	28 × 10 ✓MCA																
B:	40 × 10 ✓MCA	400 × 10 ✓C																
C:	5,7 × 5 ✓MCA	57 × 5 ✓MCA																
Space/Spasie:	0,2 × 4 ✓MA	2 × 4 ✓MA																
		[33]																

QUESTION 5 [28 MARKS]			
Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.1.1	2 Feb ✓✓RT	2RT correct date (2)	M L1 M
5.1.2	Highest wave – Lowest wave/ <i>Hoogste golf – laagste golf</i> ✓RT ✓RT = 2,27 m – 0,09 m = 2,18 m ✓CA	1RT 2,27 1RT 0,09 1CA simplification (3)	M L2 M
5.1.3	Time duration/ <i>Tydsduur</i> : 06:46 to 17:25 ✓RT 06:46 to/ <i>tot</i> 07:00 14 minutes/ <i>minute</i> 07:00 to/ <i>tot</i> 12:00 5 hours/ <i>uur</i> ✓MA 12:00 to/ <i>tot</i> 17:25 5 hours/ <i>uur</i> 25 minutes/ <i>minute</i> ✓CA Total time = 10 hours and 39 minutes <i>Totale tydsduur = 10 uur 39 min</i> INCORRECT/ <i>NIE KORREK NIE.</i> ✓O OR/OF <i>Sunset time/Sonsondergangstyd</i> ✓RT = 6:46 + 10 hours/ <i>uur</i> 48 min = 16:46 + 48 min ✓MA = 17:34 ✓CA INCORRECT/ <i>NIE KORREK NIE.</i> ✓O OR/OF <i>From/Vanaf</i> 06:46 to/ <i>tot</i> 17:25 <i>Duration/Tydsduur</i> = 17h25 – 06h46 ✓R $= (17 \times 60 \text{ min} + 46 \text{ min}) - (6 \times 60 \text{ min} + 25)$ $= 1\,045 \text{ min} - 406 \text{ min}$ $= \frac{639 \text{ min}}{60} \text{ ✓MA}$ $= 10 \text{ hours and } 39 \text{ min} \text{ ✓CA}$ INCORRECT/ <i>NIE KORREK NIE</i> ✓O OR/OF 6:46 am to 5:25 pm = 17:25 ✓RT $\therefore 17:25 - 6:46 \text{ ✓MA} \quad \text{✓CA}$ $= 10 \text{ hours } 39 \text{ minutes} / 10 \text{ ure } 39 \text{ min}$ INCORRECT/ <i>NIE KORREK NIE</i> ✓O	1RT reading correct values 1MA finding duration 1CA simplification 1O conclusion OR/OF 1RT reading correct values 1MA adding duration 1CA simplification 1O comparison OR/OF 1RT reading correct values 1MA finding duration 1CA simplification 1O conclusion OR/OF 1RT reading correct values 1MA finding duration 1CA simplification 1O conclusion (4)	M L4 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.2.1	4 ✓✓A	2A correct number of airports (2)	MP L2 E
5.2.2 (a)	Length of the bar scale/Lengte van staafskaal: $= 20 \text{ mile/myl} \div 0,621371 \quad \checkmark C$ $= 32,1868\dots$ $\approx 32,2 \text{ km} \quad \checkmark CA$ OR/OF Scale in km/Skaal in km $3,5 \text{ cm} = 20 \text{ miles/myl} \div 0,621371 \quad \checkmark C$ $3,5 \text{ cm} = 32,18688\dots \quad \checkmark CA$ $1 \text{ cm} : 9,1962\dots \text{km}$ $\approx 1 \text{ cm} : 9 \text{ km}$ OR/OF $1 \text{ km} = 0,621371 \text{ miles/myl}$ $1 \div 0,621371 = 1,6093444$ Length of the bar scale/Lengte van staafskaal: $1,609344498 \times 20 \quad \checkmark C$ $= 32,186888$ $\approx 32,2 \text{ km} \quad \checkmark CA$	1C convert to km 1CA simplification OR/OF 1C convert to km 1CA simplification OR/OF 1C convert to km 1CA simplification (2)	M L2 E
5.2.2 (b)	✓A 35 mm is 32,2 km 65 mm is n km $n = \frac{65}{35} \times 32,1868\dots \quad \checkmark MCA$ $= 59,7756\dots \text{ km}$ $\approx 59,8 \text{ km} \quad \checkmark CA$ VALID/GELDIG ✓O OR/OF If 5.2.2(a) scale is $1 \text{ cm} : 9,196254\dots \quad \checkmark CA$ Indien 5.2.2(a) skaal $1 \text{ cm} : 9,196254\dots$ is Distance/Afstand $= 6,5 \text{ cm} \times 9,196254\dots \quad \checkmark MCA$ $= 59,77\dots \quad \checkmark CA$ VALID/GELDIG ✓O	CA from 5.2.2(a) 1A measured distance 1MCA using the scale 1CA simplification 1O conclusion OR/OF 1CA measured distance from 5.2.2(a) 1MCA using the scale 1CA simplification 1O conclusion [Accept 33 mm – 36 mm] [Accept 58 km – 64 km] (4)	MP L4 M

Q/V	Solution/Oplissing	Explanation/Verduideliking	T&L
5.3.1	Time /Tyd : 08:50 to/tot 9:21 ✓RT = 31 min ✓A Distance = Speed × Time/Afstand = <i>Spoed</i> × <i>Tyd</i> 21,3 miles/<i>myl</i> = Speed/<i>Spoed</i> × 31 min ✓SF ✓C 21,3 miles/<i>myl</i> = Speed/<i>Spoed</i> × 0,5166666... hours Speed in miles/hour/<i>Spoed in myl/uur</i> $= \frac{21,3}{0,516666667}$ = 41,22581 ✓CA	1RT correct times 1A duration 1SF substitution 1C conversion to hours 1CA simplification (5)	M L3 M
5.3.2	✓RT 25 miles/<i>myl</i> = 1 gallon/<i>gelling</i> ✓MA 21,3 miles × 0,04 gallon per mile = 0,852 gallons Total cost of fuel/<i>Brandstofkoste</i> ✓RT = 0,852 × \$4,757 ✓MA = \$4,05 ✓CA CORRECT/KORREK. ✓O OR/OF Fuel cost/<i>Brandstofkoste</i> \$4,757 per gallon /<i>gelling</i> SUV uses/<i>verbruik</i> 25 mpg Cost for/<i>Koste vir</i> 25 mile/<i>myl</i> = \$4,757 ✓RT ✓RT ✓MA ∴ 21,3 miles/<i>myl</i> = <i>n</i> $n = \frac{21,3}{25} \times \\$4,757$ ✓MA $\approx \\$4,05$ ✓CA CORRECT/KORREK. ✓O	1RT correct value 25 mpg 1MA number of gallons 1RT price per gallon 1MA multiply gallons with cost 1CA simplification 1O conclusion OR/OF 1RT price per gallon 1RT correct value 25 mpg 1MA number of gallons $\frac{21,3}{25}$ 1MA multiplication 1CA simplification 1O conclusion (6)	M L4 D
		[28]	
		TOTAL: 150	