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.

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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; *Google* 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)

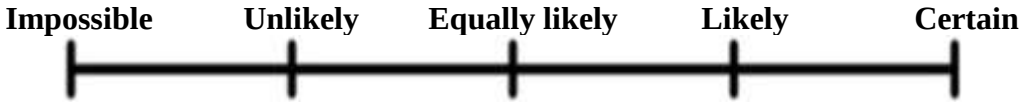
1.2 A weather prediction table for Toronto, Canada, and a probability scale are given below.

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)

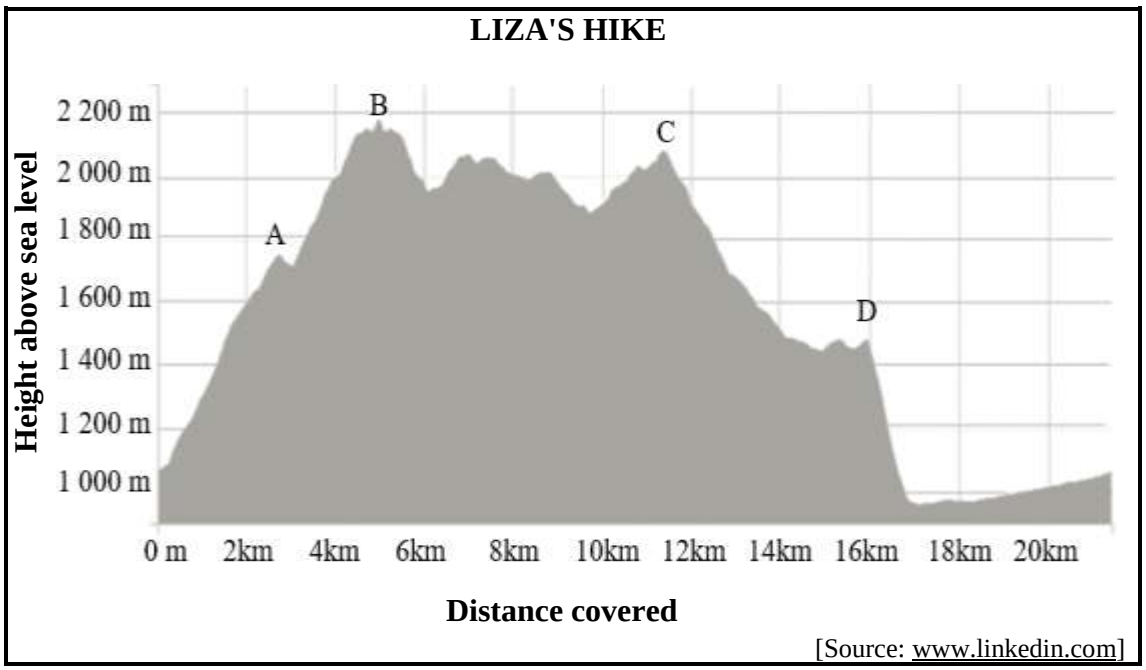
1.2.4 The actual rainfall for Monday, Thursday and Sunday was 1,3 mm, 1,4 mm and 18 mm respectively.

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.



[Source: www.linkedin.com]

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)

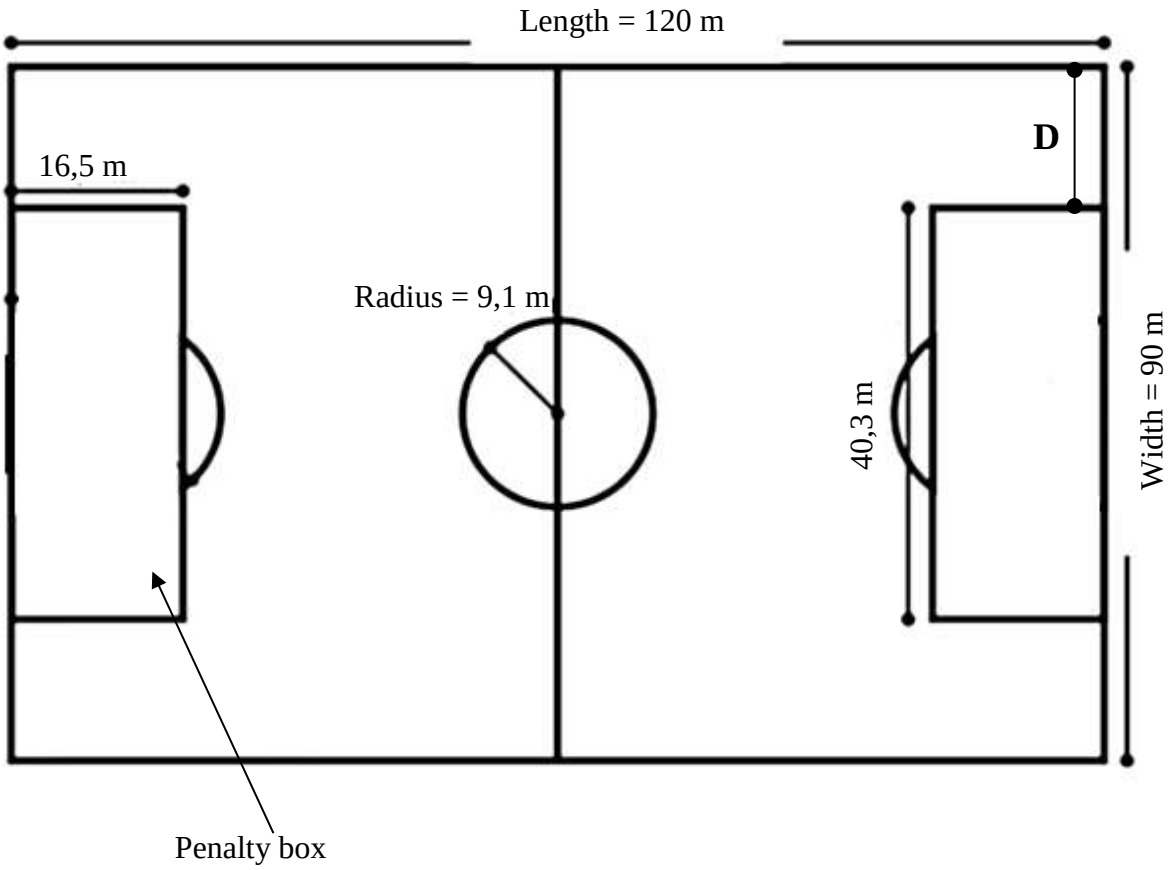
2.2.5 People seated in row ZZ, in section 203, stated they were 46 rows from the stage.

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.

DIAGRAM 1: SOCCER FIELD INCLUDING ACTUAL DIMENSIONS



NOTE:

- Penalty box = area enclosed by a 16,5 m × 40,3 m rectangular box

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 though 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 × (radius)^2 × height**

NOTE:
- 1 gallon = 3,78541178 litres
- 1 000 ℓ = 1 m^3

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 × 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 m^3 of water need to be pumped into the tank.

(a) Show, with calculations, how 4,123875 m^3 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)

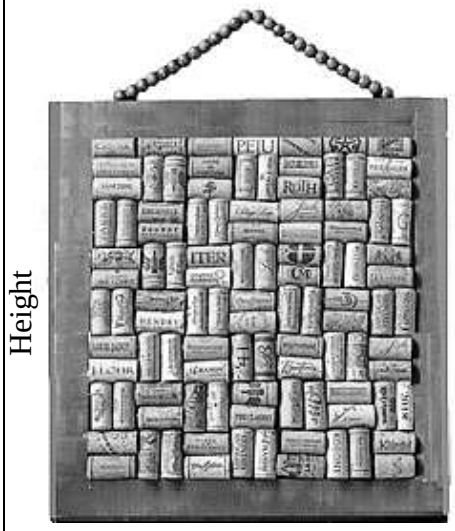
[31]

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.

PICTURE AND DIAGRAM OF PIN BOARD WITH BORDER



Height

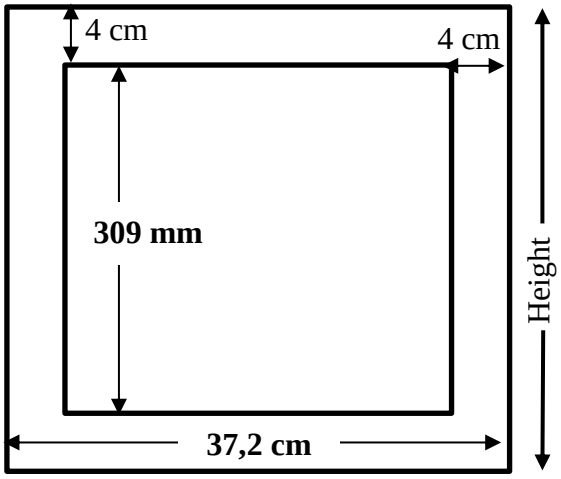
Width

CORK



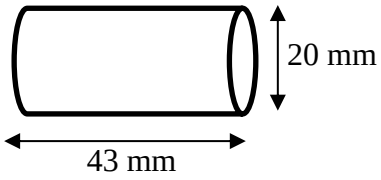
NOTE: A cork seals a bottle.

DIMENSIONS OF PIN BOARD



Width

DIMENSIONS OF A CYLINDRICAL CORK



[Adapted from www.pinterest.com]

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.

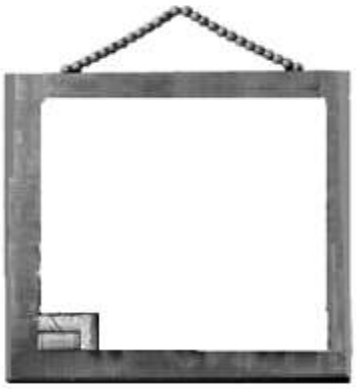
Calculate the total cost of the paint required.

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.

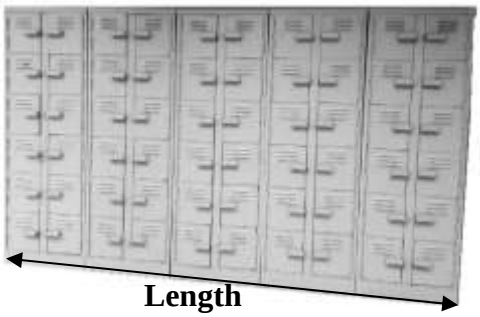
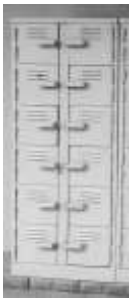
She is now going to use a new pattern by placing two corks lengthwise and one upright along the inside width of the pinboard. This pattern is repeated, ensuring that the border is still 4 cm. See the diagram below.

PICTURE OF THE NEW INCOMPLETE PATTERN	**DIAGRAM OF THE NEW INCOMPLETE PATTERN**
	
Width	Width

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.

PICTURE OF A SET OF LOCKERS	PICTURE OF A STACK OF LOCKERS
	

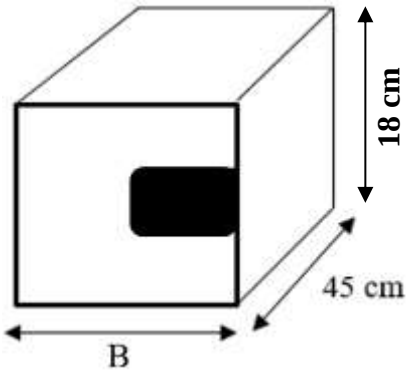
Use the information above to answer the questions that follow.

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)

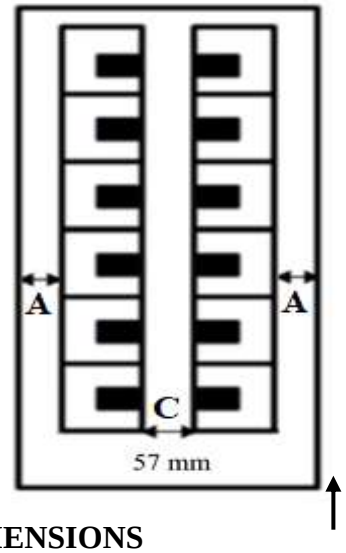
4.3.3 A single locker has a front width, **B**, a side length of 45 cm and a height of 18 cm, as shown in the diagram below.

DIMENSIONS OF A SINGLE LOCKER



The volume of ONE locker is 32 400 cm³.

FRONT VIEW OF A STACK OF LOCKERS



DIMENSIONS
A = 28 mm Space = 2 mm
C = 57 mm
Space between the stacks of lockers is 2 mm.

(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.

Verify, by means of calculations, whether he is CORRECT. (4)

5.2 Michael McKay is going to a surf competition at Huntington Beach.

The map below shows the area surrounding Huntington Beach.

MAP OF THE AREA SURROUNDING HUNTINGTON BEACH



[Source: www.surfcityusa.com]

NOTE:
1 km = 0,621371 miles

KEY:

✈	Airport
5	Route number

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.

(a) Convert the given scale to kilometres. (2)

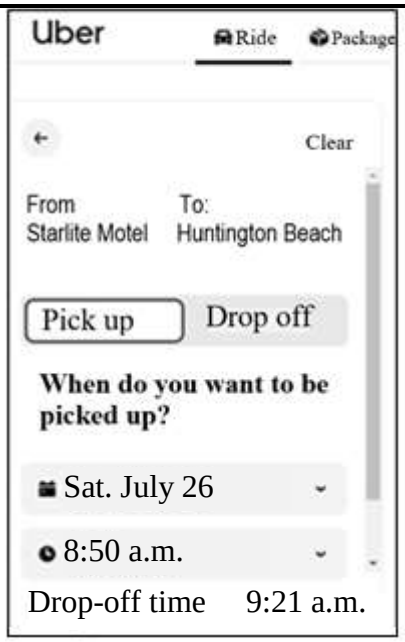
(b) Michael stated that the real direct distance from Beverley Hills to Huntington Beach is more than 55 km.

Using the measured distance and the converted scale, verify whether his statement is VALID. (4)

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	34 mpg
CAR	28 mpg	39 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:

Distance = Speed × Time (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

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