Grade 11 | Bergvliet High School | November 2024
Time: 2 Hours | Mathematical Literacy | Marks: 100
Examiner: Mr. K.W. Gwavava | Paper 2
Moderator: Mr. P. Furstenburg

Name: _____ Teacher: Fr / Gw / Si / Wm

INSTRUCTIONS AND INFORMATION

1. This paper consists of **FIVE** questions. Answer **ALL** the questions on the **ANSWER BOOK** provided.
2. Use the **ANNEXURES** in the **ADDENDUM** to answer the following questions:

   ANNEXURE A for QUESTION 1.2
   ANNEXURE B for QUESTION 2
   ANNEXURE C for QUESTION 4
3. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
4. Show **ALL** calculations clearly.
5. Round off **ALL** finals appropriately according to the given context, unless stated otherwise.
6. Indicate units of measurement, where applicable.
7. Maps and diagrams are **NOT** drawn to scale, unless stated otherwise.
8. Write neatly and legibly.

QUESTION 1

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

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	Shows a 2D view of a building/structure from above excluding the roof a building
B	The measurement of how hot or cold a substance or object is
C	The sum of the areas of all the faces of a 3D object
D	A measured amount that a container can hold
E	The rate of covering a certain distance
F	A ratio between the distance measured on a map, plan or model and the actual distance in reality
G	The length of the outside boundary of a circle

Use TABLE 1 above to write down the letter of the explanation or definition (A to G) of EACH of the following concepts:

1.1.1 Capacity (2)

1.1.2 Circumference (2)

1.1.3 Scale (2)

1.1.4 Temperature (2)

1.1.5 Speed (2)

1.2 Ulfah and Lwandle decide to fly from Cape Town to Durban using a particular airline. On **ANNEXURE A** is the interior seating plan for an Embraer E195.

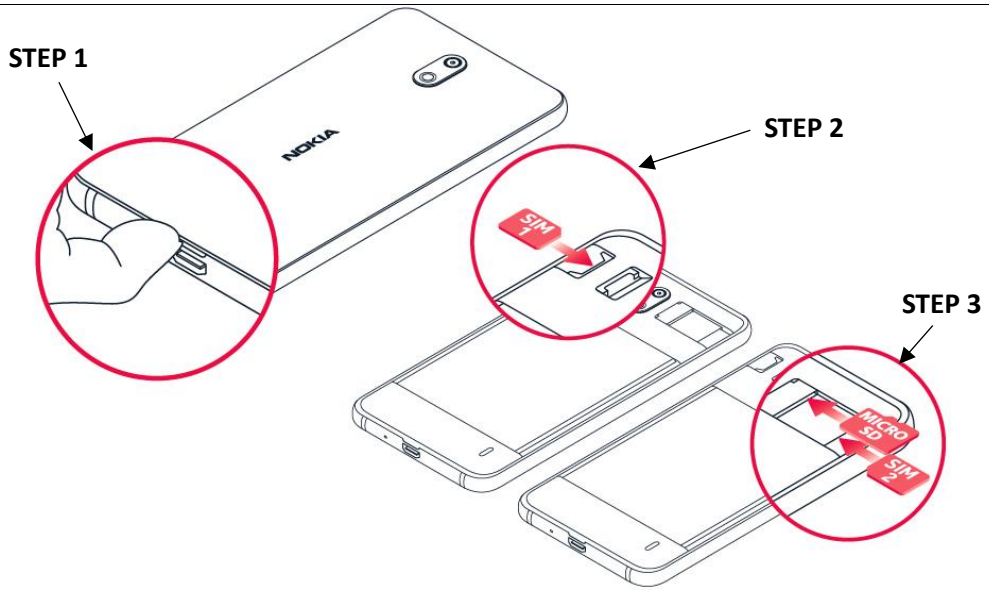
Use **ANNEXURE A** to answer the questions that follow.

1.2.1 If Ulfah was seated in 7D, would she be seated in Business Class or Economy Class? (2)

1.2.2 Determine the ratio of Business Class seats to Economy Class seats. (2)

1.3 Katelyn's parents bought a new cell phone for her as a birthday present. She owns a cell phone for the first time. She is clueless about how to insert the SIM card into the phone. She must study the images with steps given below showing how to insert a SIM card into a cell phone:

DIAGRAM 1: STEPS TO INSERT SIM CARD IN CELLPHONE



https://www.hmd.com/en_us/support/nokia-2-user-guide/insert-or-remove-sim-and-memory-card

Use the information above to answer the following questions.

1.3.1 Write down the description of **STEP 2** in your own words. (2)

1.3.2 Does the phone displayed in **DIAGRAM 1** have a single or dual SIM option? Give a reason for your answer. (2)

1.3.3 Mention one advantage of using a cell phone with a dual SIM option. (2)

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QUESTION 2

Four university friends in Johannesburg plan to watch the Rugby Championship game between the Springboks and All Blacks in Cape Town. The game starts at 17:00 on Saturday 7 September. They plan to travel by car and share the cost of the trip. On **ANNEXURE B** is a map of South Africa.

Use **ANNEXURE B** to answer the questions that follow.

2.1 Identify the type of map in **ANNEXURE B**. (2)

2.2 What is the general direction from Johannesburg to Cape Town? (2)

2.3 List the major national road that links Johannesburg to Cape Town via Bloemfontein. (2)

2.4 How many countries are shown on the map in **ANNEXURE B**? (2)

2.5 Jude and his friends took exactly 15 hours and 54 minutes to drive 1 397 km from Johannesburg to Cape Town for the rugby game.

Determine Jude's average speed for the trip rounded to the nearest 10 km/h.

You may use the following formula:

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

2.6 Jude and his friends leave Johannesburg at 21:30 on Friday 6 September. Verify, showing ALL calculations, whether Jude and his friends will arrive in time to watch the game. (3)

2.7 Jude and his friends hired a car with a fuel consumption of 7,8l per 100km. How much will each friend pay for the one-way trip if a litre of petrol costs R21,79? (7)

[23]

QUESTION 3

3.1 The Bergvliet High School management decided to buy Jojo tanks to alleviate the irrigation water problem. The Jojo tanks have a diameter of 1,82m and a height of 2,255m.

	**Product description:** **Brand:** JoJo Tanks **Product type:** Vertical water tanks **Product:** JoJo 4750 L Vertical Water Storage Tank Green **Product use:** Water storage **Colour:** Green **Code:** 4750 JJG **Capacity:** 4750L
[https://www.builders.co.za/Water-Tanks-and-Filtration/Water-Storage/Water-Tanks/JoJo-4750-L-Vertical-Water-Storage-Tank-Green/p/000000000000727078?gad_source=1&gclid=Cj0KCQjwsJO4BhDoARIsADDv4vA8aW63mGELyj4kunhW2woVC7TrsP8izGCnZQ76MAKCsZheWJk-1lIaAjrbEALw_wcB]	

NOTE: $\mathbf{1}\boldsymbol{l} = \mathbf{1000cm^3}$

Use the information above to answer the questions that follow.

3.1.1 Convert the diameter and height of the tank above to centimetres. (3)

3.1.2 Calculate the volume (in $\mathbf{cm^3}$) of the tank.

You may use the following formula:

Volume of cylinder = $\times (\boldsymbol{radius})^2 \times \boldsymbol{height}$, where $\boldsymbol{\pi} = \mathbf{3,142}$ (3)

3.1.3 Convert the volume in 3.1.2 to litres rounded off to the nearest litre. (3)

3.1.4 Why is the advertised capacity less than the actual capacity of the Jojo tank? (2)

3.1.5 After five days of rainfall, the volume of water in the tanks was a quarter of the tank's recommended capacity.

Calculate the height of the water in the tank. Round off your answer to the nearest centimetre.

You may use the following formula:

Volume of cylinder = $\times (\boldsymbol{radius})^2 \times \boldsymbol{height}$, where $\boldsymbol{\pi} = \mathbf{3,142}$ (7)

3.2 Bergvliet High School management decided to buy 6 Jojo tanks. The truck used by the school to transport the Jojo tanks is shown below.



Dimensions of 2 ton truck trailer:
Length = 3930 mm, Width = 1860 mm, Height = 360 mm
[https://www.tkingauto.com/light-duty-truck/diesel-light-duty-truck/2-ton-light-truck.html]

Calculate the minimum number of trips the Bergvliet High School driver must make to carry **ALL** the Jojo tanks. (8)

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QUESTION 4

ANNEXURE C is a floor plan of an RDP house. Use it to answer the questions below.

4.1 Explain the term *floor plan*. (2)

4.2 Explain the meaning of the given scale. (2)

4.3 Use the given scale to determine the length of the longer side on the map. Give your answer in centimetres. (3)

4.4 Determine the number of windows on the floor plan. (2)

4.5 Give the general direction of Bedroom 1 from the Kitchen. (2)

4.6 What is the probability of finding a door that opens towards the left on the floor plan from the outside? Give your answer as a decimal. (3)

4.7 Show how the area of Bedroom 2 is $7{,}8\text{m}^2$, rounded off to one decimal place.

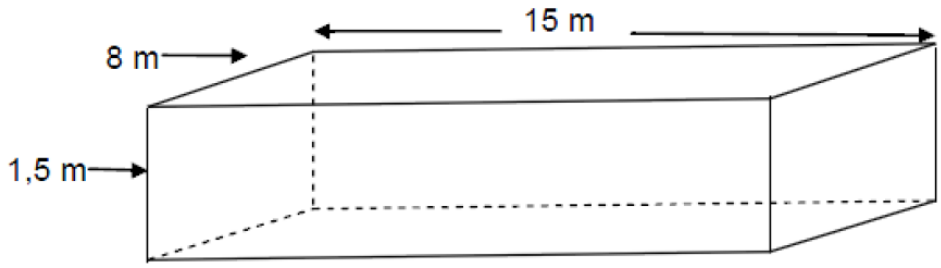
You may use the following formula:

Area $=$ **length** $\times$ **width** (3)

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QUESTION 5

The Tshabalala family is having a pool built at the back of their house. The pool will be 15m in length, 8m in width and 1,5m in depth. A diagram of the pool is given below.



5.1 The Tshabalala family wants the pool walls to be tiled.

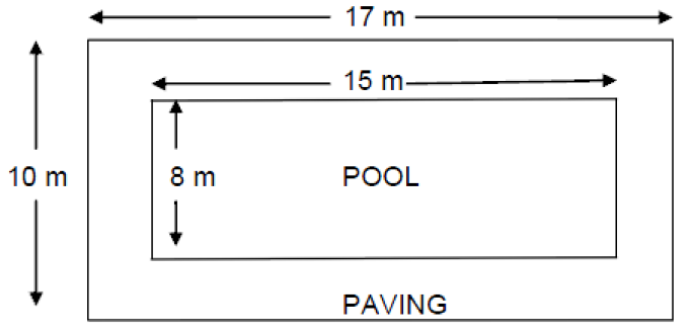
5.1.1 Calculate the surface area (in m^2) of the walls of the pool that will be tiled.

You may use the following formula:

Surface Area $=$ (**2** $\times$ **length** $\times$ **depth**) $+$ (**2 × width × depth**) (3)

5.1.2 Square tiles are going to be used. Each tile measures 20cm $\times$ 20cm. Calculate how many tiles are needed to tile the pool walls. (5)

5.2 The Tshabalala family will put a fence around the pool. The fence will be placed 1m away from the pool. The diagram below shows the final measurements of the fence.



5.2.1 Calculate the total amount of fencing needed in metres.

You may use the following formula:

Perimeter $=$ **2(length** $+$ **width)** (2)

5.2.2 A meter of fencing costs R850. How much will the Tshabalala's pay for fencing? (2)

5.3 On a particular day, the swimming pool temperature was $82°\text{F}$. What was the temperature in Degrees Celsius?

You may use the following formula:

$$°\text{C} = (°\text{F} - \mathbf{32}) \div \mathbf{1,8}$$ (2)

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TOTAL MARKS: 100