Hillcrest High School

Grade 11

MATHEMATICAL LITERACY P2

NOVEMBER 2024

MARKS: 100

TIME: 2 Hours

EXAMINER: Mrs J. Leuschke

MODERATOR: Ms G. Stow

Instructions:

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions and 8 pages.

2. Clearly show ALL calculations, diagrams, graphs, etc which you have used to determine your answers.

3. Answers only will NOT necessarily be awarded full marks.

4. An approved scientific calculator (non-programmable) may be used, unless otherwise stated.

5. If necessary, answers should be rounded off to TWO decimal places, unless otherwise stated, or appropriately within the given context.

6. Number the answers EXACTLY as the questions are numbered.

7. Diagrams are not necessarily drawn to scale.

8. It is in your own interest to write legibly and to present your work neatly.

QUESTION 1

1.1 The table below shows the relationship between hours and the rate charged per hour or part thereof. Tariffs include value added tax (VAT). Refer to the table and answer the questions that follow.

TABLE 1: PARKING FEES FOR THIS AREA

HOURS	RATE CHARGED PER HOUR OR PART THEREOF:
0–2	R5,00
2–3	R7,00
3–4	R10,00
4–5	R12,00
5–6	R15,00
6–8	R20,00
More than 8 hours	R40,00

NOTE: Lost ticket penalty is R50,00 plus additional charges.

1.1.1 What is the rate charged if Mr. Sokutu parked his car for 8 hours and 15 minutes? (2)

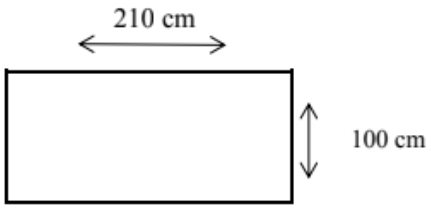
1.1.2 Write 8 hours and 15 minutes in hours. (2)

1.2 Mr. Titi lost his ticket. When looking on the security cameras, they noticed that he arrived at the mall at 11:30 and that it was now 14:20.

1.2.1 Determine how much time lapsed. (2)

1.2.2 Calculate how much Mr. Titi was charged. (2)

1.3 Refer to the rectangular diagram below and answer the questions that follow.



Scale 1 : 100

1.3.1 Define the term ‘perimeter’. (2)

1.3.2 Determine the perimeter of the rectangular diagram in cm. (2)

1.3.3 Give the name of the scale found in the diagram. (2)

1.3.4 Explain what a scale of 1:100 means. (2)

1.4 .1 Identify from the list below a provincial road in South Africa. (2)

They are as follows :

N10

R44

M75

1.4.2 Define the term 'provincial road' in the above context. (2)

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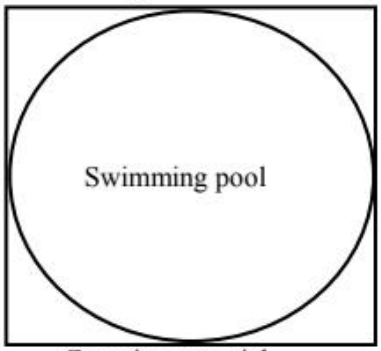
QUESTION 2

2.1 Ms Stow has a circular swimming pool with a diameter of 32,8084 feet and a depth of 2 meters in her yard. She cleans it every month and it costs her a lot of money to refill. She intends to buy a square covering material for the swimming pool so that she no longer cleans it monthly.

Below is the picture of the swimming pool and the diagram illustrating a swimming pool with the covering material.

Picture

Diagram



You may use the following formulas:

Area of a square = side × side

Volume of a circular prism = $\pi r^2 h$, where $\pi = 3,142$

NOTE: 1 m = 3,28084 feet and 1 m^3 = 1 kilolitre

2.1.1 Ms Stow states that the pool should be filled to 80% of its capacity. Give one possible reason for her statement. (2)

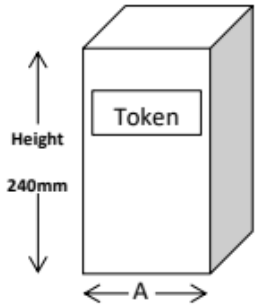
2.1.2 Calculate the amount of material (to the nearest feet²) needed to cover the entire swimming pool. (3)

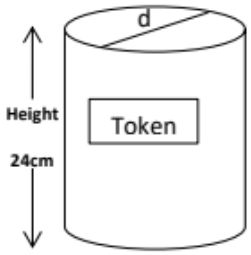
2.1.3.1 Calculate the volume of the circular swimming pool. (4)

2.1.3.2 Convert your answer in 2.1.3.1 to kilolitres. (2)

2.1.4 The paving around the pool is 1,8m wide. Ms Stow claims that the area of the paving is 140m². By showing all calculations, verify whether Ms Stow is correct or not. (5)

2.2 Ms Stow is invited to a wedding. At the wedding, the guests will all receive tokens of appreciation from the couple. They will use cylindrical containers and square containers as shown below to package the tokens. The diameter of the cylindrical container is 14cm.





Volume = 3456 cm^3

2.2.1 Write down the radius of the cylindrical container. (2)

2.2.2 Show, with calculations, that the volume of the cylindrical container is 238,99cm more than the volume of the container with the square base. (4)

You may use the formula :

$$\textbf{Volume} = \pi r^2 \times \text{h where } \pi = 3{,}142$$

2.2.3 Determine A, the length in cm of ONE side of the square base. (4)

2.3 The bridal couple received a floor lamp as a wedding gift. The floor lamp came with instructions for its assembly. ANNEXURE A shows the instructions of how a floor lamp is assembled. Use ANNEXURE A to answer the questions below.

2.3.1 How many parts are used to assemble the floor lamp excluding the tools (Allen keys and wrench)? (2)

2.3.2 Determine the probability of randomly using a set screw to assemble the floor lamp. Write your final answer as a decimal to 3 decimal places. (3)

2.3.3 Give a reason why the manufacturer included an 'IMPORTANT' instruction to the instructions. (2)

2.3.4 Explain why the manufacturer did not include a bulb in the [packaging. (2)

2.3.5 Explain the purpose of the connector. (2)

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QUESTION 3

Study the map, ANNEXURE B, that shows an extract of Durban. Answer the following questions that refer to the map, ANNEXURE B.

3.1. Give Two general directions that will be travelled from the Durban City Centre via Berea to Sydenham. (2)

3.2 Use the linear (bar) scale on the map and rewrite it as a numeric scale as

1 : …… to the nearest thousand. (4)

3.3 The distance from The Bluff to Riverside is 18,2km when using the M4. At what time will you arrive in Riverside if you leave the Bluff at 14:53 and travel at a speed of 65km/hr? (6)

3.4 The city of Durban did NOT expand to the east. Give a reason for this. (2)

3.5 If a tourist randomly selects a beach off the map to visit, what is the probability, as a percentage, that they would choose North Beach? (2)

[16]

QUESTION 4

4.1 Mrs Jugmohan's cousin comes to visit for the holidays. She decides to join the gym while she is visiting. She is 1,54m tall and weighs 67kg. The instructor at the gym calculates her body mass index (BMI) in order to determine her health status.

$$\text{BMI} = \frac{\text{mass}}{(\text{height})^2}$$

The table below shows the health status according to the BMI.

BMI	HEALTH STATUS
Below 18kg/m²	Underweight / Malnourished
Between 18kg/m² and 24,9kg/m²	Normal
Between 24,9kg/m² and 29,9kg/m²	Overweight
Above 29,9kg/m²	Obese

Use the information above to answer the questions that follow.

4.1.1 Calculate Mrs Jugmohan's cousins BMI (correct to 1 decimal place). (3)

4.1.2 Identify the cousin's health status. (2)

4.1.3 One day Mrs Jugmohan was phoned as her cousin had collapsed at the gym. Mrs Jugmohan took her to the doctor and her temperature was 43ºC. Convert her temperature to ºF (rounded to the nearest 10ºF). (4)

$$^{\circ}C = (^{\circ}F - 32) \div 1{,}8$$

4.2 Mrs Jugmohan decided that her cousin should not go to the gym for a while. They decided to bake bread to sell.

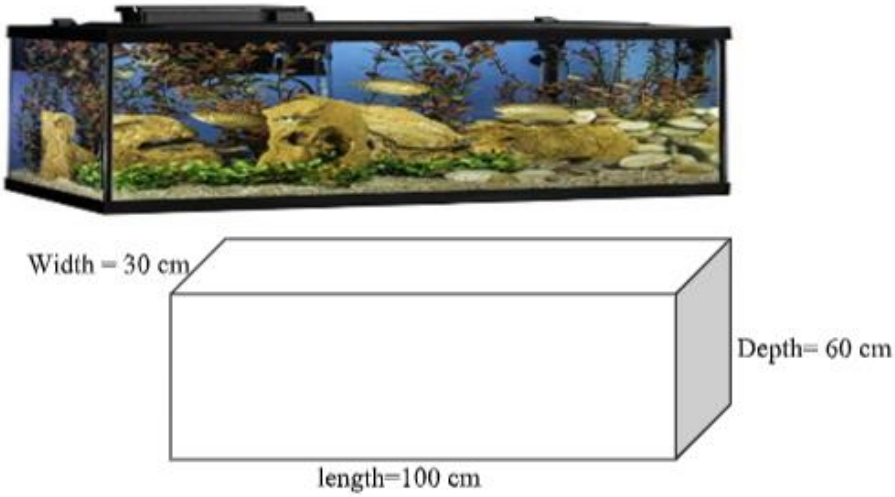
Recipe for a loaf of bread:
0,5 kg flour
1 teaspoon salt
1 cup of water
7,5 g yeast
150 g dried fruit mix

Use the information above to answer the questions that follow.

4.2.1 They want to make 50 loaves of bread. Calculate the amount of dried fruit mix that they will need in kilograms. (3)

4.2.2 Mrs Jugmohan's cousin commented that 0,25kg of yeast will not be enough to bake 50 loaves of bread. Verify, showing all calculations, whether or not she is correct. (4)

4.3 Mrs Jugmohan's husband, Mr Jugmohan, has a business of selling fish tanks. His business is growing. He decides to buy a bigger tank that can carry 26 fish. Available tanks at the factory are 30cm wide, 100cm long and 60cm deep.



NOTE: 1 fish needs at least 7 litres of water

1 000 cm³ = 1 litre

Volume = length × width × depth

Use the information above to answer the questions that follow.

4.3.1 Calculate the volume of the tank in litres. (3)

4.3.2 Will 26 fish fit in the tank? Justify your answer using calculations. (3)

4.3.3 Convert the volume of the tank to gallons (rounded off to the nearest gallon) (5)

1litre = 1,7598 pints

1 pint = 0,125 gallons.

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