education

Department of Education
FREE STATE PROVINCE

MID YEAR EXAMINATION

GRADE 12

MATHEMATICAL LITERACY P2

JUNE 2025

MARKS: 100

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TIME: 2 HOURS

This question paper consists of 10 pages and an ADDENDUM with 4 ANNEXURES.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Answer all questions 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. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
8. Write neatly and legibly.



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QUESTION 1

1.1 In TABLE 1 below is a list of explanations and definitions of terms/concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	The clock or watch that shows moving hands and hours are marked from one to twelve to give you the time.
B	The outer boundary of a two-dimensional figure.
C	The total sum of exterior areas of a three-dimensional object.
D	The clock or watch where time is displayed by numbers only.
E	1 000
F	A plan that shows how items are arranged in a certain space.
G	The number by which each dimension of the actual object is either reduced or enlarged.
H	A plan that shows the layout of a building or facility, as seen from above.
I	1 000 000
J.	Number scale

Use the information above to write down the letter of the explanation or definition (A to H) of EACH of the following concepts. Only write the question and the corresponding letter of the correct definition e.g. 1.1.6 K.

1.1.1 Scale factor (2)

1.1.2 Grams in one ton (2)

1.1.3 Analogue clock/watch (2)

1.1.4 Layout plan (2)

1.1.5 Perimeter (2)

1.2 Mr Matthee and his friends took part in the Medihelp Stellenbosch cycle tour. The tour started at 06:00 in the morning.

ANNEXURE A shows the route map of the tour.

Use ANNEXURE A to answer the questions that follow.

1.2.1 Determine the number of water points. (2)

1.2.2 Write down the cut-off time when all cyclists were expected to finish the tour. (2)

1.2.3 One of the cyclists claimed that the last town that they will pass before they reach the finishing point is Pniel. Is the statement TRUE or FALSE? (2)

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1.3 Cyclists were provided with water in water bottles. The picture below shows a standard 500 mℓ bottle of water with dimensions.



Use the information above to answer the following questions.

1.3.1 Convert the diameter of the bottle to mm. (2)

1.3.2 State which formula (A, B OR C) below can be used to calculate the volume of the water in the bottle.

A. Volume = $\pi \times \text{radius}^2$

B. Volume = $2 \times \pi \times \text{radius}$ (radius + height)

C. Volume = $\pi \times \text{radius}^2 \times \text{height}$ (2)

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QUESTION 2

2.1 Lerato works for a printing company in Pofadder, South Africa. The company is planning to open another branch in Walvis Bay, Namibia. Lerato will be expected to work there as the manager.

ANNEXURE B shows the road and distances in kilometres (km) from Pofadder to Walvis Bay.

Use ANNEXURE B to answer the questions that follow:

2.1.1 Write down the name of the map shown on ANNEXURE B. (2)

2.1.2 Calculate the total distance that Lerato will travel from Pofadder to Walvis Bay if she travels via Maltahöhe. (3)

2.1.3 Identify the number of National Roads shown on the map. (2)

2.1.4 Lerato wanted to visit a friend in Aus on her way to Walvis Bay. Lerato's manager claimed that she will still travel the same distance calculated in 2.1.2 if she continues straight using C13 and C14 from Aus to Walvis Bay.

Verify, showing all calculations, whether the manager's statement is VALID. (5)

2.2 Lerato and her friend visited Denver Zoo during a visit to the USA. The layout plan of the zoo and a map of the surrounding area, is given in ANNEXURE C.

Use ANNEXURE C to answer the following questions.

2.2.1 Write down the ratio, in simplified form, of the number of service points to the number of education points. (3)

2.2.2 Lerato entered the zoo and turned West. She passed the predator enclosure and continued walking.

Write down the name of the next major animal enclosure that she will encounter. (2)

2.2.3 The shortest distance between York Street and Colorado Street is 1,6km. Verify (showing all calculations) whether the bar scale on the map is correct. (7)

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QUESTION 3

3.1 The BMI (Body Mass Index) of a person can be calculated by using the following formula:

$$\textbf{BMI} = \frac{\textbf{Weight (in kg)}}{[\textbf{height (in m)}]^2}$$

TABLE 2 shows the BMI weight status table that classifies people according to their BMI.

TABLE 2: BMI WEIGHT STATUS TABLE

BMI	WEIGHT STATUS
Less than 18,5	Underweight
From 18,5 to 24,9	Normal
From 25 to 29,9	Overweight
30 or more	Obese

Use TABLE 2 above to answer the following questions.

3.1.1 Determine the BMI (rounded to 2 decimal places) of a person whose mass is 72 000 g and has a height of 1,79 m. (3)

3.1.2 Write down the weight status of the person mentioned in 3.1.1. (2)

3.1.3 Explain why it is important to know what your weight status is. (2)

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3.2 Jane has a metal water tank. Due to rust she is planning to paint the outside of the tank using a primer coat and a topcoat. Each coat is applied twice.

Below Jane's tank with dimensions are shown.





Circular opening

Diameter of circular opening = 48cm

height = 225,5 cm
radius = 910 mm

NOTE:

- the tank top has a circular opening at the top that must not be painted.
- the base of the tank is not to be painted.
- A primer coat is a base coat which help the surface to be smooth for painting.

1 litre =1 000 cm^3

Area of a circle = $\pi \times radius^2$
Volume of a cylinder = $\pi \times radius^2 \times height$
Use $\pi = 3,142$

3.2.1 Calculate the area of the circular opening. (3)

3.2.2 Show, with calculations, that the volume of the tank (rounded off to the nearest 1 000) is 6 000 ℓ. (5)

3.2.3 The primer coat cost R129,00/ℓ while the topcoat cost R525 per 5 ℓ. One litre of primer coat and topcoat can each cover an area of 8 m^2.

Calculate the total cost of painting the tank. (8)

3.3 Jane is preparing for a meeting that she will host on Friday afternoon. She decided to make fat cakes with curry mince.

Below is the recipe for the fat cakes and curry mince.

FAT CAKE	CURRY MINCE
2 cups plain flour	250g beef mince
7 g instant yeast	2 large potatoes
1 cup lukewarm water	1 large onion
1 teaspoon salt	1 large carrot
1 teaspoon sugar	2 large tomatoes
Sunflower oil	2 tablespoon chutney
	1 tablespoon olive oil
	1 cube beef stock

[Source: adapted from foodleclub.com/vetkoek-and-curried-mince]

3.3.1 Determine the amount of flour (in grams) that will be needed to make the fat cakes.
(Hint: 1 cup = 120g) (2)

3.3.2 The temperature of the oil for frying the fat cakes was given as 356 °F.

Use the formula below to convert this temperature to degree Celsius.

$$°F = (°C \times \frac{9}{5}) + 32$$ (3)

3.3.3 Jane will take 30 minutes to fry all the fat cakes. If she finishes at 08:43, at what time did she start frying the fat cakes? (2)

3.3.4 Write down, as a percentage, the probability that Jane will use margarine in her fat cake recipe. (2)

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QUESTION 4

4.1 Mr Hlubi's soccer team is taking part in a football tournament at iMbali Soccer Stadium.
On his way to iMbali, while travelling in a north-easterly direction, the driver of the stopped in Selby Msimang Road to consult his map for directions to the Soccer Stadium.

ANNEXURE D shows the map with directions to iMbali soccer stadium.

Use ANNEXURE D to answer the following questions.

4.1.1 Give the grid reference for the iMbali Soccer Stadium. (2)

4.1.2 Write down the general direction of iMbali Community Hall from KwaHlenga hospital (2)

4.1.3 Describe the shortest possible route that the bus driver should take from the point where the bus stopped to the entrance of the iMbali Soccer Stadium, which is in Nkugwini road. (4)

4.1.4 At 09:15, the bus driver informed the team that they would be at the stadium by 09:20. The bus travelled at an average speed of 40 km/h for 2,9 km.

Verify, by means of calculations, whether the bus driver's estimated time of arrival was correct.

The following formula may be used:

$$\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{Time}}$$

(6)

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4.1.5 The team use the bag below to carry their soccer balls. The dimensions of the ball are as follows:

Circumference = 28 inches
Weight = 450 g

The balls are placed in a carry bag that can have a maximum of 5 balls.



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NOTE
1 ounce = 28,35 grams
π = 3,142

(a) Calculate the radius of a ball.

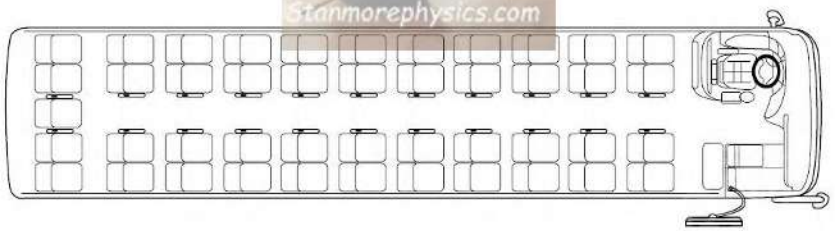
You may use the formula:

Circumference of the ball = 2 × π × radius (3)

(b) The maximum weight that the bag can carry is 79,37 ounces.

Show by means of calculations that the bag can carry 5 balls. (3)

4.2 The diagram below shows the seating plan of the bus the team was travelling with.



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Use the seating plan above to answer the following questions.

4.2.1 State the view represented in the seating plan. (2)

4.2.2 Write the number of passengers that may be accommodated in the bus. (2)
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