



Province of the
EASTERN CAPE
EDUCATION



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2022

**MATHEMATICAL LITERACY P2
(DEAF)**

MARKS: 150

TIME: 3 hours

This question paper has 12 pages and an addendum with 2 annexures.

INSTRUCTIONS AND INFORMATION

1. This question paper has **FIVE** questions.
2. Use the **ANNEXURES** in the ADDENDUM to answer the following questions:
 - ANNEXURE A for QUESTION 2.1 and 2.2
 - ANNEXURE B for QUESTION 4.1
3. **Answer** ALL the **questions**.
4. **Number** the questions **correctly**.
5. Diagrams and maps are NOT necessarily drawn to scale.
6. **Round off** ALL the final **answers appropriately** (correctly).
7. **Indicate** (show) units of measurement, where applicable.
8. **Start** EACH **question** on a **NEW** page.
9. **Show** ALL **calculations** **clearly**.
10. Write neatly.

QUESTION 1

1.1 Mrs Bester sells 450 g packs of rusks at R49,50 per pack.

The table below shows the main ingredients of the rusks.

TABLE 1: MAIN INGREDIENTS TO BAKE 5 000 g OF RUSKS

Ingredients	Quantities
Self-rising flour	1,56 kg
Bran flour	6,25 cups
Raisins	125 g
Butter	625 g

NOTE: A rusk is a hard, dry biscuit or twice baked bread.

[Adapted from [www.food24.com/Recipes-and-Menus/](http://www.food24.com/Recipes-and-Menus/South-African-Recipes) South-African-Recipes]

Use the information above to answer the questions.


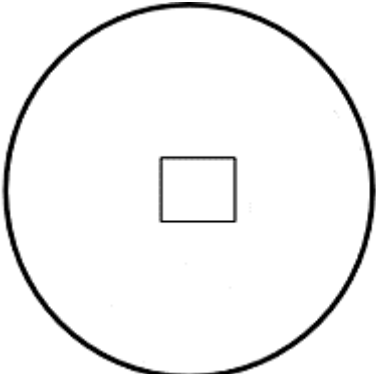
1.1.1 **Convert**_(change) 1,56 kilogram (kg) to gram (g). (2)

1.1.2 **Write** in **simplified ratio** form, the **mass** of **raisins** to mass of **butter**. (2)

1.1.3 **Calculate** the **number** of **cups** of bran flour **needed** if Mrs Bester **bakes 8 kg** of rusks. (3)

1.1.4 **Calculate** the **mass** of **raisins** needed to **bake** a **450 g** pack of rusks. (3)

1.2 Below is a **coin** that has a **square** hole in its centre.

PICTURE OF A COIN WITH A HOLE IN THE MIDDLE	DIAGRAM OF THE TOP SURFACE OF THE COIN
	 <p data-bbox="820 824 1299 860">Diameter of circular coin = 32 mm</p>

NOTE:

- The **square hole** has an **area** of **0,9025 cm²**
- The **circular coin** has an **area** of **8,04 cm²**
- The **weight** of the **coin** (mass of the coin) is 28,25 g

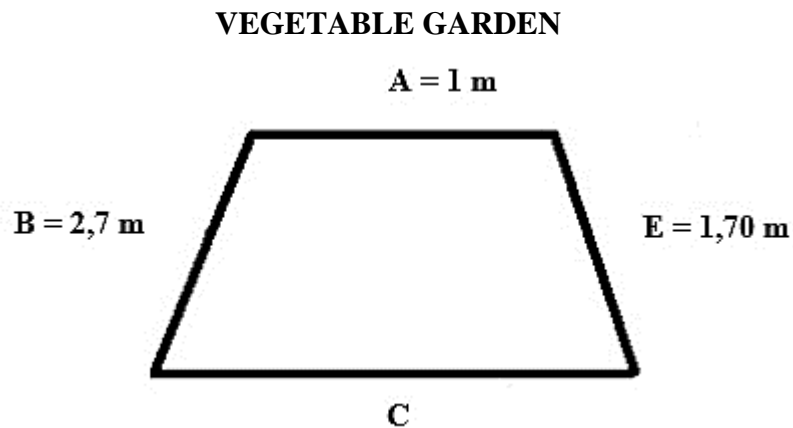
[Source: www.pinterest.com and www.bin.com]

Use the information above and answer the questions.

- 1.2.1 **Define** the term '*diameter*' regarding the diagram of the **top surface** of the **coin**. (2)
- 1.2.2 **Calculate** the **difference between** the **area** of the **circular coin** and the **square hole** area in **mm²**. (4)
- 1.2.3 **Write** the **square hole area** of the **coin** as a **percentage** of the **circular coin area** in the diagram shown above. (2)
- 1.2.4 **Express**_(show) the **weight** of the **coin** in **kg**. (2)
- 1.2.5 **Calculate** the **radius** of the **coin** in **mm**. (2)
- 1.2.6 **Calculate** the **total weight** of **15 coins** in **grams**. (2)
- 1.2.7 **Write** down the **exact time** (in hours and minutes) if it was bought at 11:15 and sold 4 hours and 50 minutes later. (3)

1.3

The diagram below shows the top view of a vegetable garden. The perimeter of the vegetable garden is 8,9 m.



NOTE: The drawing is not drawn to scale.

[Adapted from <https://www.topperlearning.com>]

Use the above information to answer the questions.

1.3.1 **Explain** what it **means** when a **drawing** is **not drawn** to **scale**. (2)

1.3.2 **Calculate** the **length** of side C. (2)

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QUESTION 2

- 2.1 A couple from Netherland decided to have a three-day vacation(holiday) at the Mapungubwe National Park in the Republic of South Africa.

ANNEXURE A contains a map that they used to get to the Mapungubwe National Park.

Use ANNEXURE A to answer the questions.

- 2.1.1 Give the **grid reference** of the Vhembe Trails Camp. (2)
- 2.1.2 Identify the **provincial road** between Musina and the Mapungubwe National Park. (2)
- 2.1.3 Name the **national road** on the map. (2)
- 2.1.4 In which **general direction** is Pointdrift from Pretoria? (2)
- 2.1.5 Describe using towns and/or **route numbers** as references, **TWO** possible routes from Pretoria to Mapungubwe National Park. (6)

- 2.2 South African friends of the Netherlands couple **departed**(left) from Pretoria at 04h30 am to spend the holiday with them. Their journey is described as follows:

- On their way from Polokwane they took the turn-off to the R521 route
- Rest for 45 minutes at Dendron and
- took 15 minutes to do some shopping and fill up the car's fuel tank at Alldays.

- 2.2.1 If the scale of the map is given as 1 : 3 000 000 and the distance measured on the map between Beitbridge and Musina is 1,3 cm.

Calculate (in km) the **actual distance** between Beitbridge and Musina. (3)

- 2.2.2 **Determine**(find out), showing ALL calculations, the **distance** from Pretoria to Mapungubwe National Park as it appears on the map. (2)

- 2.2.3 The South African friends travelled at an average speed of 120 km/h between Pretoria and Mapungubwe National Park aiming to arrive at 10:00 am. Also considering ALL stoppages, **show** with **calculations** **whether** they will **make** it at this **aimed time**.

You may use the following formula: **Distance = Average Speed × Time** (4)

- 2.2.4 The petrol consumption of the car is 0,79 litres per 10 km.


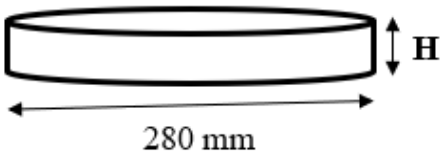
- (a) **Determine**(find out) the **total litres** of **fuel** to be **used** between Pretoria and Mapungubwe National Park. (4)

- (b) **Calculate** the **cost** of **petrol** to drive from Pretoria to the Mapungubwe National Park. The petrol **price** is **R23,90** per litre. (2)

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QUESTION 3

- 3.1 Miss Bagley's son owns a small bakery. She uses a cylindrical baking pan as shown below.

PICTURE OF A BAKING PAN	DIMENSIONS OF A BAKING PAN
	

Other information:

- A cylindrical baking pan has a $3\,079,16\text{ cm}^3$ capacity
- The oven must be preheated to 430°F before placing the baking pans

[Source: www.google.com]

Use the information above to answer the following questions.

- 3.1.1 **Calculate** (in cm) the **circumference** of the **cylindrical baking pan**.

Use the formula: **Circumference of circle** = $2 \times 3,142 \times \text{radius}$ (3)

- 3.1.2 **Determine** (in cm) the **height** of the **cylindrical baking pan**.

You may use the formula:

Volume of a cylindrical baking pan = $3,142 \times (\text{radius})^2 \times \text{height}$ (5)

- 3.1.3 **Convert**_(change) **430°F** to **degrees ($^\circ\text{C}$)**.

Use the formula: $^\circ\text{C} = (^\circ\text{F} - 32) \div 1,8$ (3)

3.2

Miss Bagley is concerned about the amount of sugar intake she consumes(takes). She reads an article on the internet about the amount of sugar contained in some drinks.

TABLE 2 below shows the sugar content per volume of some drinks.

TABLE 2: SUGAR CONTENT PER VOLUME OF SOME DRINKS

NAME OF DRINK	VOLUME (IN ml)	NUMBER OF GRAMS OF SUGAR PER ml	NUMBER OF CALORIES
Energade	500	20 g	80
Vitamin water	500	5,5 g	90,9
Monster	500	57,3 g	A
Dry Lemon	330	B	169,2
Coca-Cola	330	35 g	140
Orange juice	240	21,1 g	-

NOTE: 1 g of sugar = 4 calories
1 teaspoon sugar = 4 g

[Adapted from www.mobilefatsecret.com]

Use the information above to answer the questions.

3.2.1 Calculate the missing values **A** and **B**. (4)

3.2.2 Determine(find out) the total amount of sugar (in grams) that will be consumed(takes) by Miss Bagley if she drinks THREE cans of Monster per week. (2)

3.2.3 Miss Bagley decided to be more health conscious(aware) and changed her drinks to:

- TWO 500 ml vitamin water per day
- ONE 500 ml Energade per week

Verify, by show of calculation, whether her sugar intake per week is now 56,4% of the previous intake. (6)

3.2.4 Calculate the total mass of sugar (in kilograms) that will be consumed(taken in) by ONE person in ONE year by drinking TWO 330 ml cans of Coca-Cola daily. (4)

3.2.5 Suggest TWO ways on how Miss Bagley can reduce her sugar intake. (4)

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QUESTION 4

- 4.1 Mrs Arison has a floor plan with dimensions in *feet* and *inches* for a house she intends to build.
Refer to ANNEXURE B which shows an image of the floor plan of this house.

Use ANNEXURE B to answer the questions.

- 4.1.1 The plan for the house is an open kitchen living room plan. Explain the meaning of this concept '*open kitchen living room plan*' using the information in the plan. (2)
- 4.1.2 **Name TWO bathrooms** that are **adjacent** (i.e. share a back wall) to each other. (2)
- 4.1.3 In which general direction do bedrooms 3 and 4 windows face? (2)
- 4.1.4 **Determine**(find out) the **number** of **doors** shown on this **floor plan**. (2)

- 4.2 Mrs Arison needs to convert the measurements of the plan to metres since she will be building the house in South Africa.

NOTE: 1 foot (") = 30,48 cm

1 inch (') = 0,0254 m

Dimensions:

Bedroom no.	Length	Width
2	14 feet 5 inches	10 feet 9 inches
4	12 feet 2 inches	10 feet 3 inches

Use the information above to answer the questions that follow.

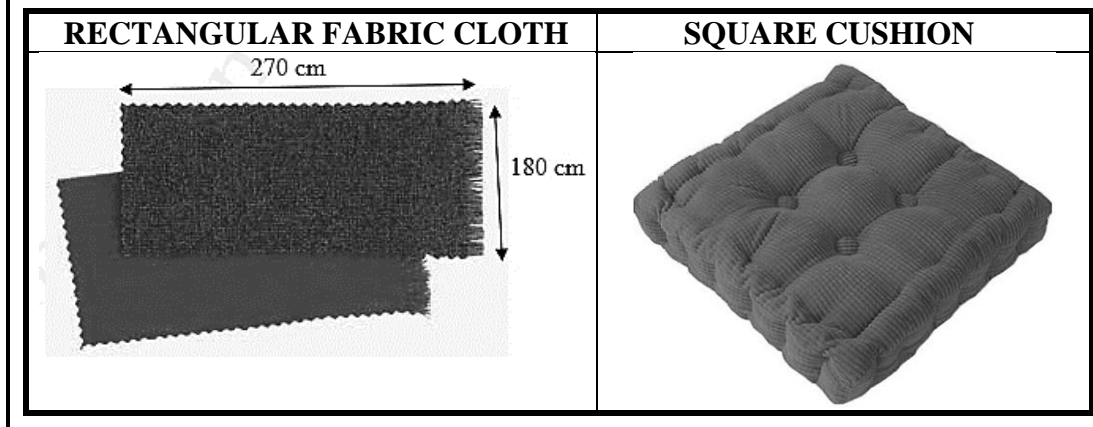
- 4.2.1 Use the **measurements given** to **calculate** the **total length** of **bedroom 2** and **bedroom 4** in metres. (6)
- 4.2.2 Ceilings of bedroom 2 needs to be painted with one coat of paint. Mrs Arison states that one 2,5 litre tin of paint will be enough for painting bedroom 2. The spread rate of paint is 6 m² per litre.

Verify, by showing ALL calculations, whether Mrs Arison is CORRECT.

You may use the formula: Area of rectangle = Length × Width (8)

4.3

Mrs Arison needs to redecorate her living room. She bought a piece of fabric (material) that is 180 cm wide and 270 cm long. She wants to cut the piece of fabric into squares to make cushions. She uses lace to decorate right round the cushions.



Use the information above to answer the following questions.

- 4.3.1 The top of the square shaped cushions has an area of $2\,025\text{ cm}^2$. Mrs Arison states that the total length of the lace needed for one cushion's top or face is less than 2 m. Prove, with the necessary calculations, if her statement is valid.

You may use the following formula:

$$\text{Area of a square} = \text{Side}^2$$

$$\text{Perimeter of a square} = \text{Side} \times 4$$

(6)

- 4.3.2 Determine (find out) the **number** of **cushions** Mrs Arison will be able to **cut** from the **piece** of **fabric** cloth. Show ALL calculations.

(6)

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QUESTION 5

- 5.1 A customer plans to buy the 2021 ISUZU SUV that is advertised at a **reputable**(trustworthy) car dealership company. The salesman said to the customer that the company stocks a variety of colours for this SUV.

Currently in stock are:

- 6 black
- 5 metallic grey
- 4 metallic blue
- 3 red and
- 2 white

Below is a photo showing the 2021 ISUZU SUV that arrived in South Africa.



[Source: <https://www.carsguide.com.aumu-x>]

Use the information above to answer the questions .

- 5.1.1 The customer has a garage at home with a width of 3,5 m. He claims that when the car is parked exactly in the middle of the garage, there will be an empty space of more than 0,82 m on each side of the car. With calculations, prove if his claim is **valid**(true) or not. (5)
- 5.1.2 The customer randomly picks a metallic grey SUV as his favourite choice. **Calculate** the **probability** (as a decimal) of **choosing** a **metallic grey** SUV. (3)
- 5.1.3 **Show** that the **probability** as a **percentage** of selecting a non-metallic paint ISUZU SUV, is less than 56%. (4)

5.2

A company built a three-dimensional (3D) model of the Isuzu MU-X to be used as a toy car displayed on a table. A scale of 1 : 8 is used in the models.

3D model of Isuzu MU-X	Table used for the scale model
	

NOTE:

The actual dimensions of the Isuzu MU-X model are:

- **Length** = 482,5 cm
- **Width** = 186 cm
- **Height** = 186 cm

Furthermore, the 3D scale model of the Isuzu MU-X car:

- Must fit on a square tabletop
- The area of the table is 3 716,1216 cm²
- Only 35% of the tabletop area must be used for the scale model

Verify, by showing ALL calculations, **whether** a scale of **1 : 8** will be **suitable** for the **scaled model**.

(9)

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TOTAL: 150