



Province of the
EASTERN CAPE
EDUCATION



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

JUNE 2024

**MATHEMATICAL LITERACY P2
(DEAF)**

MARKS: 100

TIME: 2 hours

This question paper has 13 pages and an addendum with 2 annexures.

INSTRUCTIONS AND INFORMATION

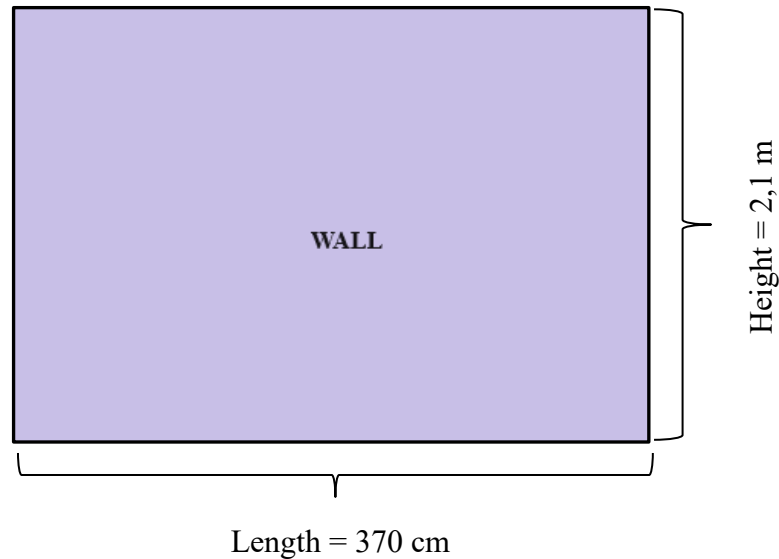
Read the instructions.

1. This question paper has **FOUR questions**.
Answer **ALL the questions**.
2. Use the **ADDENDUM** with **ANNEXURES** to answer these questions::
 - ANNEXURE A for QUESTION 1.3
 - ANNEXURE B for QUESTION 2.2
3. **Number the answers the same** as the numbers on the **question paper**.
4. Start **EACH question** on a **NEW page**.
5. You **may use a calculator**.
Some questions will tell you **NOT** to use a **calculator**.
6. **Show ALL calculations**.
7. **Round off ALL final answers to fit the content** of the question.
Some questions will tell you **how to round off**.
8. **Write units** where needed.
9. **Diagrams** are **NOT** drawn to **scale**.
Some questions will tell you to **use the scale**.
10. Write **neatly**.
Your work must be **easy to read**.

QUESTION 1

- 1.1 **Uncle James bought a house and decided to do some renovations to the lounge area. He plans to change one of the walls in this room.**

Below is the wall he plans to change.



Use the **information**. Answer the questions.

- 1.1.1 **Define the term *perimeter*.** (2)
- 1.1.2 **Convert the length of the wall to metres.** (2)
- 1.1.3 **Calculate the wall perimeter.**

You may use the formula: $P = \text{length} + \text{length} + \text{height} + \text{height}$ (2)

- 1.2 **Jameson will win a club cycling award if he is able to finish at least 600 km of cycling distance in a seven-month time. He cycles as follows:**

- **The Vineyard Race in February (75 miles)**
- **The Ocean-to-Ocean Race in March (114,3 km)**
- **The Karoo Fun Race in April (271 km) and**
- **The Charity Fun Sprint (148,1 km) was his last participation in June.**

NOTE: 1 km = 0,6214 miles

- 1.2.1 **Calculate, in km, the distance he cycled in the Vineyard Race.** (2)
- 1.2.2 **Hence, find the total distance achieved by Jameson throughout the time. Give your answer in kilometre (km).** (2)

1.3

The **road map** of the **Medi-help Stellenbosch Cycle tour** is shown in **ANNEXURE A**.

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

1.3.1 Name **ONE** town that is situated **directly** on **the road**. (2)

1.3.2 **How many water points** are available on the Medi-help Stellenbosch Cycle **tour**? (2)

1.3.3 Which **national road** crosses the route? (2)

1.3.4 In which **general direction** is **Stellenbosch** from **Pniel**? (2)

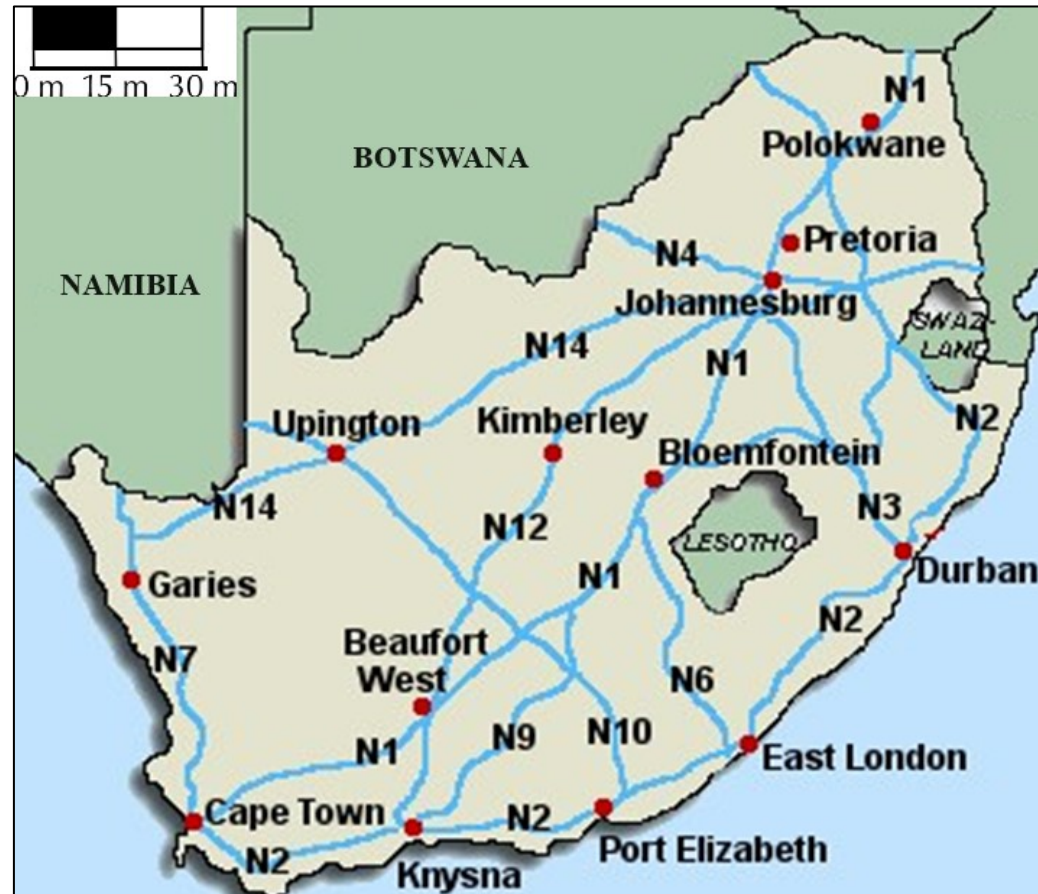
1.3.5 **Identify** the **mountain pass** situated **on the route**. (2)

[20]

QUESTION 2

- 2.1 Mr Salters travelled from East London to Johannesburg, via Bloemfontein, to send boxes of seed.

The map below shows the national roads of South Africa.



[Adapted from <https://images.google.co.za>]

Use the map. Answer the questions.

- 2.1.1 Identify the type of scale used on the map. (2)
- 2.1.2 Name only TWO national roads that Mr Salters will travel on from East London to Johannesburg via Bloemfontein. (2)
- 2.1.3 Write down the general directions that a person will travel from Cape Town to Garies, and from Garies to Upington. (2)

2.1.4 Mr Salters' wife wishes to visit Walvis Bay in Namibia during the December holidays.

Mr Salters says that **she would need a passport to go to Walvis Bay.**

Why will his wife need a passport to visit Walvis Bay? (2)

2.1.5 The **petrol tank** of Mr Salters' car has a **size** of **75 litres**.

He says that it will cost him **4% more** if he **fills his car inland**, instead of at the coast (**near the sea**).

NOTE: Fuel cost:

➤ Inland: R22,49

➤ Coastal: R21,77

[Source: AA Petrol price January 2024]

Prove, with the necessary calculations, whether what he says is valid_(true) or not. (5)

2.2

The **Kruger National Park** is a well-liked tourist destination.

Some information about the park is given:

The **speed control** inside the park is:

- **50 km/h on tarred roads**
- **40 km/h on gravel roads**

Gate times:

- **Entrance gates open at 05:30**
- **Camp gates open at 04:30**
- **All gates close at 18:30**

ANNEXURE B shows a part of a map of the **Kruger National Park** and **TABLE 2** shows the **distances between camps and gates**.

Use the **information** and **ANNEXURE B**. Answer the questions.

2.2.1 Give **ONE** possible **reason** why there are **special times** for the **opening and closing of gates** at the park. (2)

2.2.2 Find out the **difference** in the **number** of **main camps** and **other camps** on this part of the **map**. (2)

2.2.3 If **Odwa** leaves **Skukuza** at **17:15** and leaves the park through the **Numbi Gate**, find out the **time** that he will arrive at the **Numbi Gate**.

The following formula may be used:

Distance = speed × time

NOTE: Gravel road distance is the **same** as the **tarred road distance**. (5)

2.2.4 **Many people** visiting the park **choose** to travel on the **gravel roads**, and **not** on the **tarred roads**. **Why?** (2)

[24]

QUESTION 3

3.1

In a **Mathematical Literacy classroom**, a teacher keeps **coloured pencils** in **three same cylindrical containers**.

These pencils stay on the containers until they are used or lost.

Below is an example of a picture of the container with the coloured pencils and the drawing of the cylindrical container.

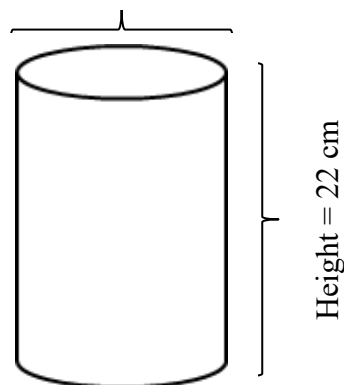
(Diagram NOT drawn to scale.)

Example of a picture of container with coloured pencils



Drawing of cylindrical container with dimensions

Diameter = 83 mm


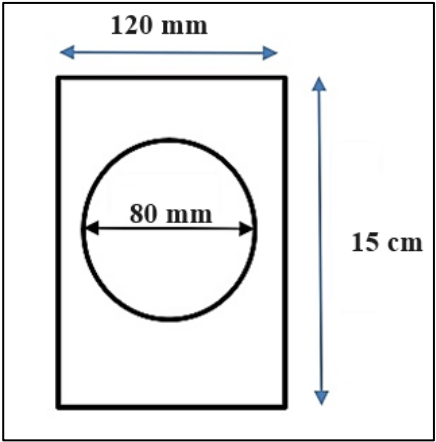


3.1.1 The **diameter of one of the coloured pencils is 6 mm** and the **length is 16,7 cm**. **Prove, with the necessary calculations, that 39 coloured pencils can be put into THREE of the cylindrical containers.** (9)

3.1.2 The **teacher packs some of the coloured pencils** in each of the containers **like this: 3 pink, 2 black, 2 purple and 3 orange pencils**. **Calculate the probability that if a coloured pencil is taken from ALL the containers, it will be a purple pencil. Give your final answer to THREE decimal places.** (3)

- 3.2 Party invitation cards are in a **rectangular shape**, with a **circular photo** of the birthday **girl in the middle** of the **invitation card**.

An example of the invitation card is given below and a diagram with dimensions (measurements)

Example of image of invitation without photo	Diagram of invitation card with dimensions
	

- 3.2.1 (a) Calculate the **area** of the **rectangular invitation card** to the nearest **mm²**.

You may use the following formula:

$$\text{Area of a rectangle} = \text{length} \times \text{width} \quad (3)$$

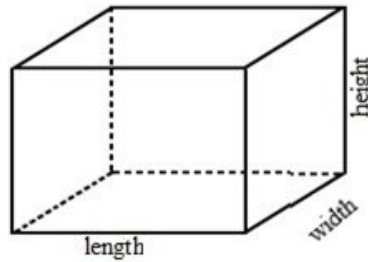
- (b) Hence, **calculate the area** of the rectangular invitation card **without the photo** to the nearest **mm²**.

You may use the following formula:

$$\text{Area of circle} = \pi \times \text{radius}^2. \text{ Use } \pi = 3,142 \quad (4)$$

3.2.2

One of the visitors buys a **gift** that is **packed** in a **rectangular box**. She must **cover** the **gift box** with **covering paper**.



Dimensions of the box are:

Length = 38,8 cm

Width = 27,5 cm

Height = 30 cm

Calculate the total surface area in cm^2 of the paper that is needed to cover the gift box.

You may use the formula:

Total Surface Area of gift box = $2 (\text{length} \times \text{width}) + 2 (\text{width} \times \text{height}) + 2 (\text{length} \times \text{height})$

(4)

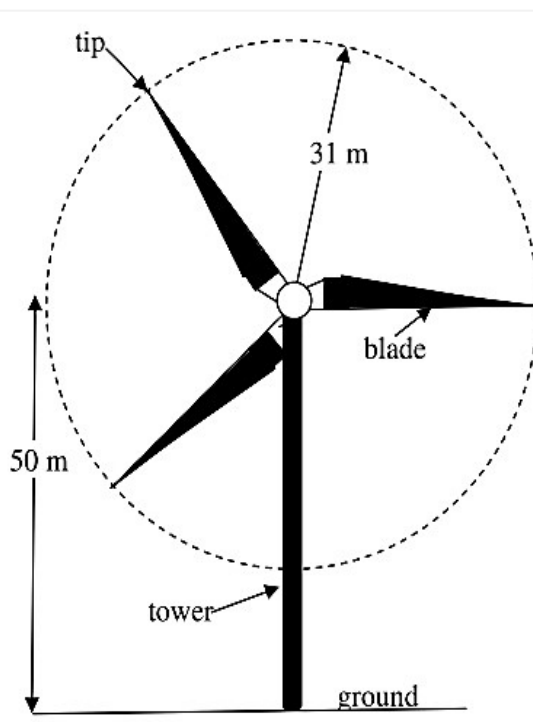
3.3

Electricity has become a scarce (**not enough**) resource in South Africa. As a result, the country is studying other sources of producing electricity. Another source of producing electricity is a wind turbine using turning blades as shown in the picture and drawing below.

Image of wind turbine



Drawing of wind turbine



The **wind turbine** is put on the top of a **50 m high tower**.
The length of each blade is **31 m**.

3.3.1 Find out the **length of the diameter** of the **circle** that the **blades** create as they turn around

(2)

3.3.2 Calculate the **maximum height** from the **ground** to the **tip** of a **blade** if the turbine is turning around.

(2)

3.3.3 Calculate the **circle circumference** made by the **blades** when it turns around twice.

You may use the formula:

Circumference = $2 \times \pi \times \text{radius}$, using $\pi = 3,142$

(2)

3.3.4 What if each family needs **25 kWh** of electricity daily.

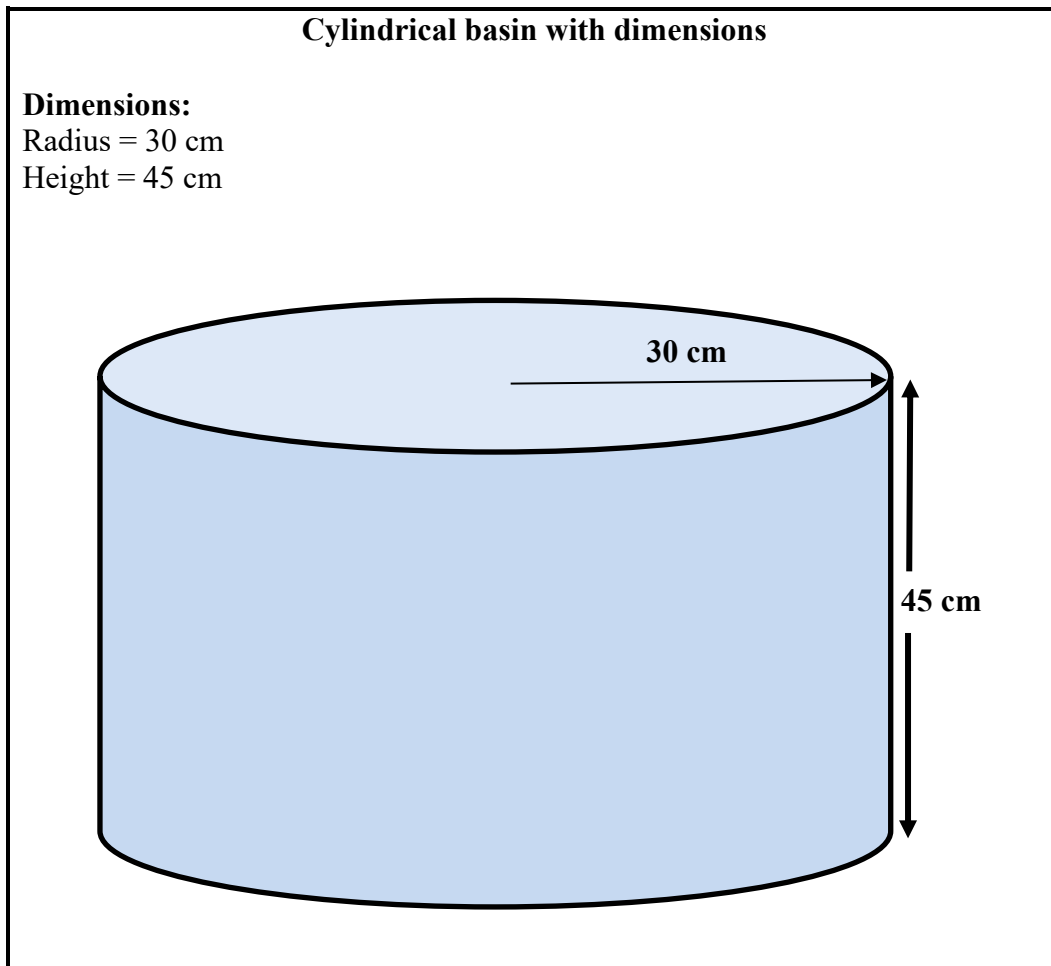
If one wind turbine produces **1 750 kWh** of electricity daily, calculate how many families could be given electricity daily from one such turbine.

(2)

- 3.4 Sandra washes her dishes by hand three times daily in TWO equal cylindrical basins.

She uses one basin for washing the dishes and the other for cleaning it.

Each basin has a radius of 30 cm and a depth of 45 cm, as shown in the drawing below.



Sandra pours water on each basin to three quarters ($\frac{3}{4}$) of its capacity each time she washes or cleans the dishes.

Calculate how much water (in litres) she will use daily to wash and clean dishes by hand. (NOTE: $1\,000\text{ cm}^3 = 1\text{ litre}$)

You may use the following formula:

Volume = $\pi \times r^2 \times h$, use $\pi = 3,142$

(5)
[36]

QUESTION 4

4.1

Mr and Mrs Thana went shopping in Phuket, Thailand on **Friday** and **booked** into a hotel afterwards **at 15:30**.

They **left the hotel** the **following Tuesday** at **10:00**.

They bought a small cylindrical gift box for their daughter to keep her earrings and hair equipment's in, as shown below.

**Dimensions:**

Diameter = 10 cm

Height = 20 cm

NOTE:

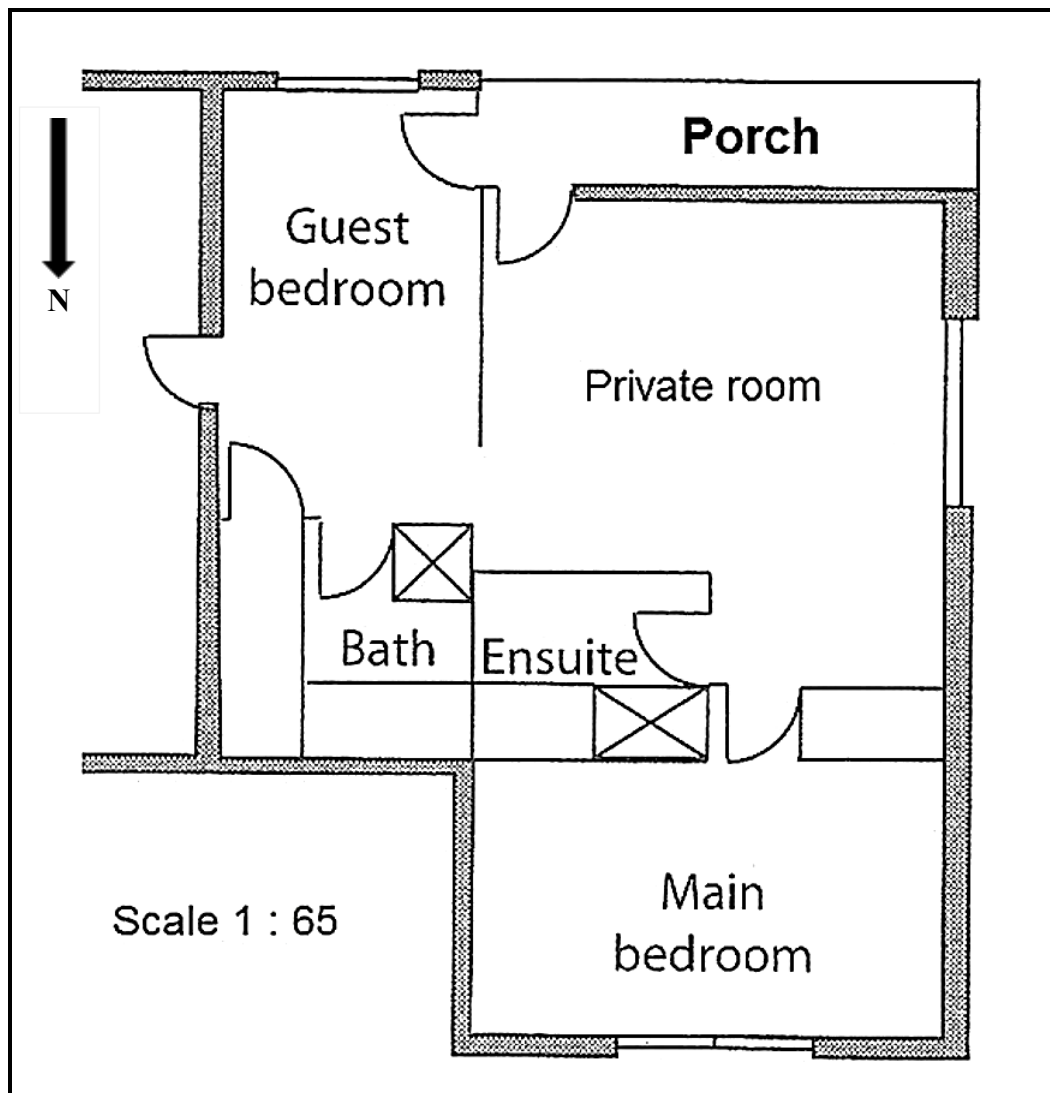
Area of a circle = $3,142 \times \text{radius}^2$

Volume of a cylinder = $3,142 \times \text{radius}^2 \times \text{height}$

[Source: www.google.com]

- 4.1.1 **Prove, with the necessary calculations that the total number of hours that Mr and Mrs Thana stayed in the hotel was less than 90 hours.** (5)
- 4.1.2 **The volume of their daughter's cylindrical gift box is 1 571 cm³ with a diameter of 10 cm. Calculate the height of the cylindrical gift box.** (4)
- 4.1.3 **The top and the bottom of the cylindrical gift box is made of a special type of wood that costs R144,65/m². Calculate the total cost of the wood to make the top and the bottom of the cylindrical gift box, if the area of the top is 78,55 cm².** (5)

- 4.2 Ms Harker asked a builder to draw a scale drawing of a planned renovation to her house. The **floor plan** of the planned renovation is **shown below**.



- 4.2.1 The **measured length** of the **main bedroom** is **3,4 cm**. Calculate **real length** of the **main bedroom** using given scale. (2)
- 4.2.2 What is the **probability** of **choosing a door** that **opens to the eastern side**? (2)
- 4.2.3 Since the **house is in South Africa**, **which room do you think will get the most sun**? (2)

[20]

TOTAL: 100