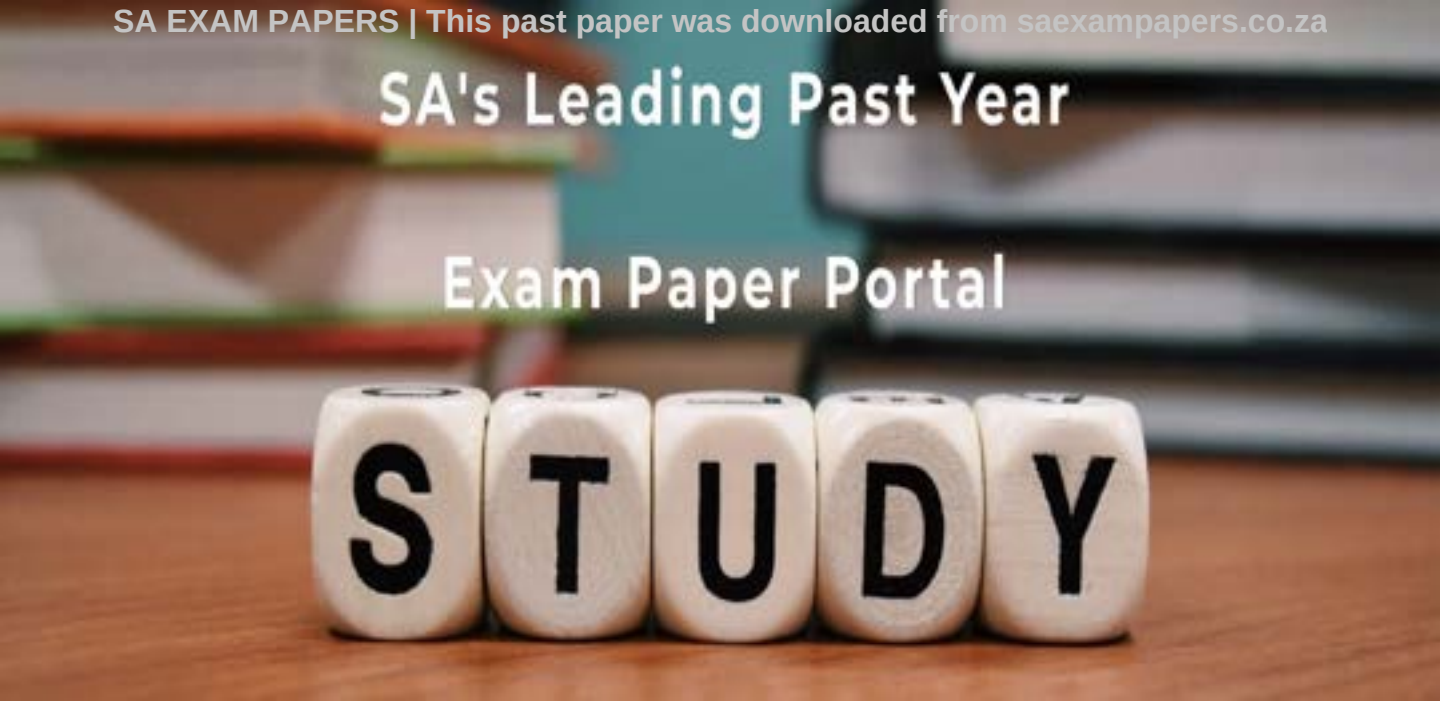


Province of the
EASTERN CAPE
EDUCATION

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.

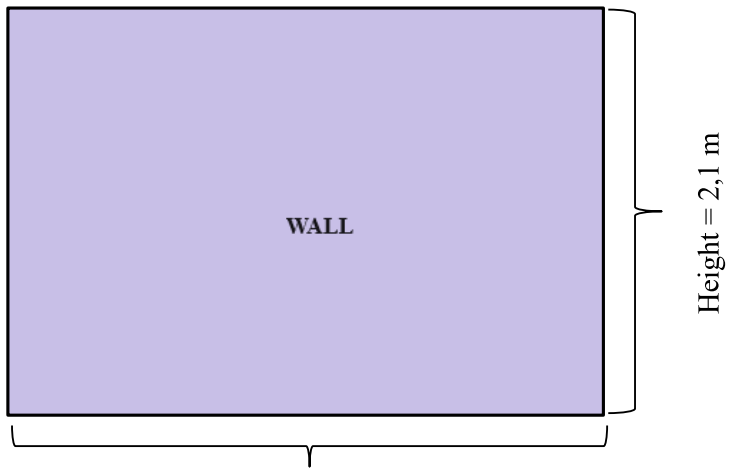
9. **Diagrams** are **NOT** drawn to **scale**.
   Some questions will **tell** you to **use the scale**.

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 = length + length + height + 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)

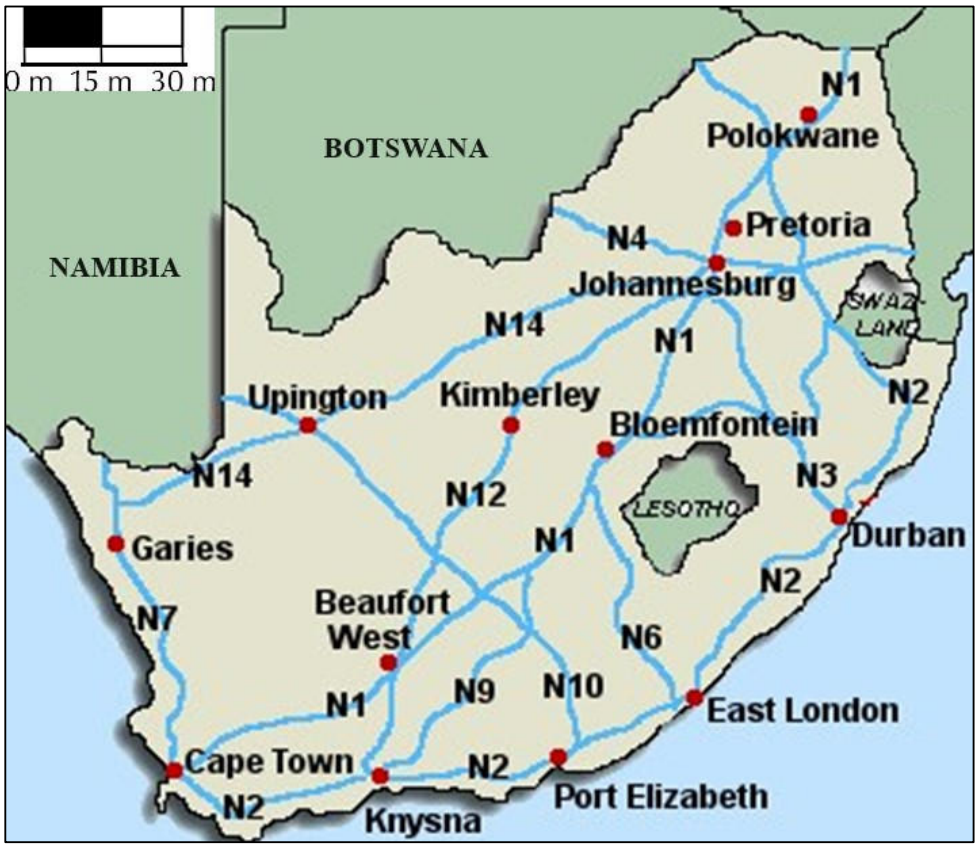
1.3.4 In which **general direction** is **Stellenbosch from Pniel?** (2)

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

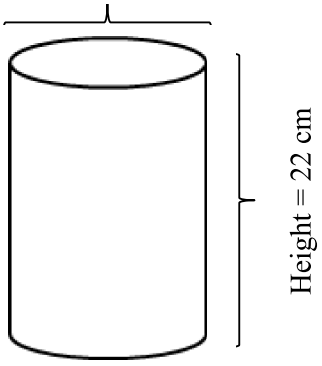
NOTE: Gravel road distance is the **same** as the **tarred road distance**. (5)

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

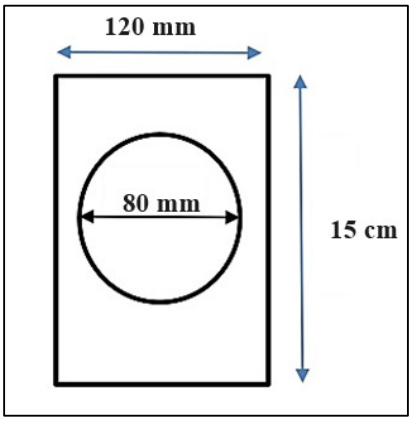
3.1 In a **Mathematical Literacy classroom**, a teacher keeps **coloured pencils** in **three same cylindrical containers**.
These pencils stay on the containers until they are used or lost.
Below is an example of a picture of the container with the coloured pencils and the drawing of the cylindrical container.
(Diagram NOT drawn to scale.)

Example of a picture of container with coloured pencils	**Drawing of cylindrical container with dimensions**
	

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:

Area of a rectangle = length × width (3)

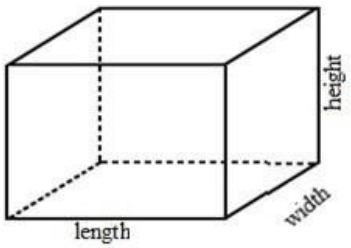
(b) Hence, **calculate the area** of the rectangular invitation card **without the photo to the nearest mm².**

You may use the following formula:

Area of circle = π × radius². Use π = 3,142 (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

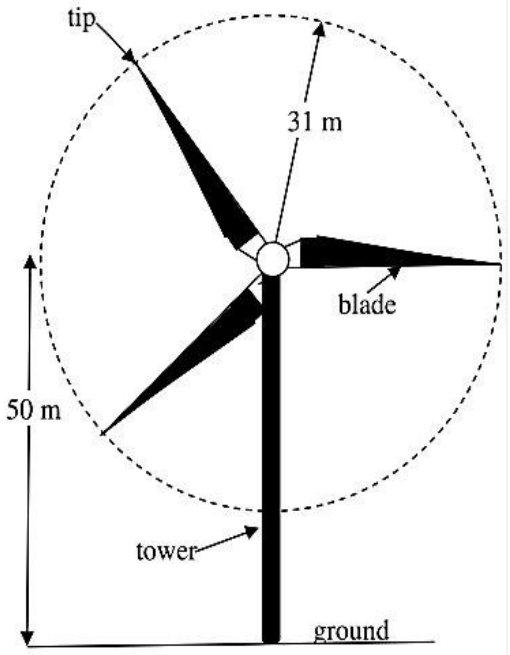
Calculate the **total surface area in cm^2** of the **paper** that is **needed** to **cover** the **gift box.**

You may use the formula:

Total Surface Area of gift box = 2 (length × width) + 2 (width × height) + 2 (length × 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 × π × radius, using π = 3,142 (2)

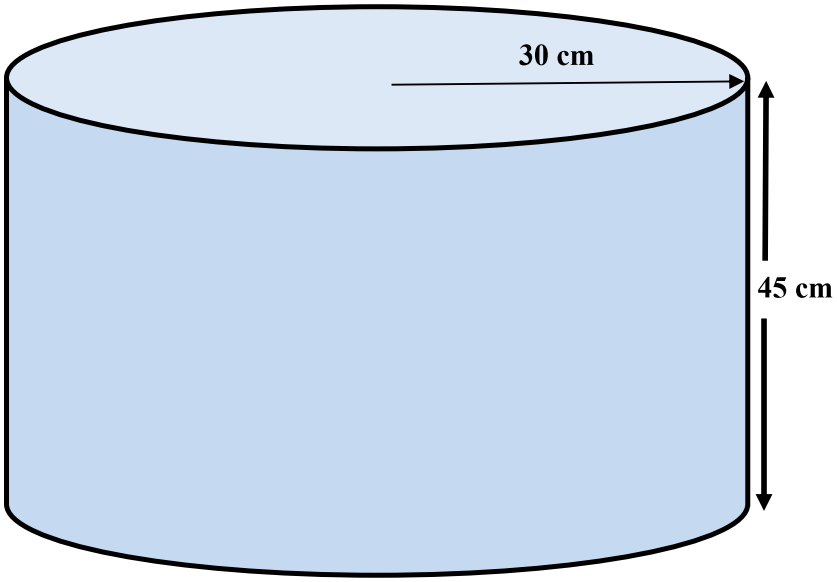
3.3.4 What **if each family needs 25 kWh of electricity daily**.

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.

Cylindrical basin with dimensions

Dimensions:
Radius = 30 cm
Height = 45 cm



Sandra **pours water** on **each basin** to **three quarters** (¾) 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 cm^3 = 1 litre**)

You may use the following formula:
Volume = $\pi \times r^2 \times h$, use **π = 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 × radius^2
Volume of a cylinder = 3,142 × radius^2 × height

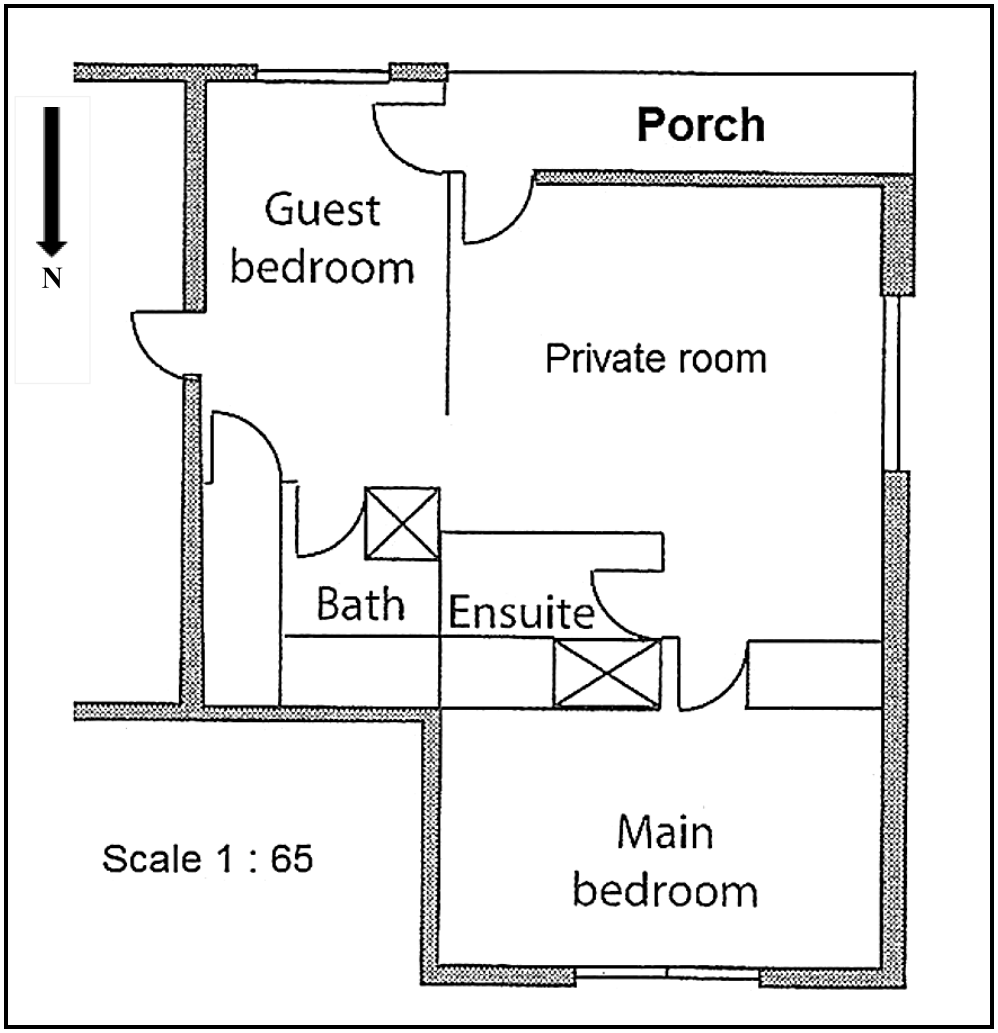
[Source: www.google.com]

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 cm^3** 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/m^2**. **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 cm^2**. (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