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GRADE 12

MATHEMATICAL LITERACY P2

MAY / JUNE 2024

MARKS: 100

TIME: 2 hours

This question paper consists of 12 pages including 2 annexures.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the ANNEXURES to answer the following questions:

ANNEXURE A for QUESTION 2
ANNEXURE B for QUESTION 4.1
3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1


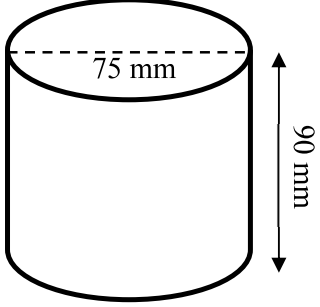
- 1.1 TABLE 1 below contains a list of explanations and definitions of concepts used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	A change from one system / unit to another.
B	The total distance around the boundary or edge that outlines a specific shape.
C	The measurement between two points, in a straight line.
D	Measurement that uses metres, litres, kilograms, etc.
E	Using an instrument to determine size, weight etc.
F	An indication of how heavy an object is.

Use TABLE 1 above to write down the letter of the explanation or definition (A to F) of EACH of the concepts.

- 1.1.1 Length (2)
- 1.1.2 Metric system (2)
- 1.1.3 Perimeter (2)
- 1.2 The picture below show a tin of Clover Full Cream Condensed Milk 385g and a diagram of the condensed milk tin with its dimensions.

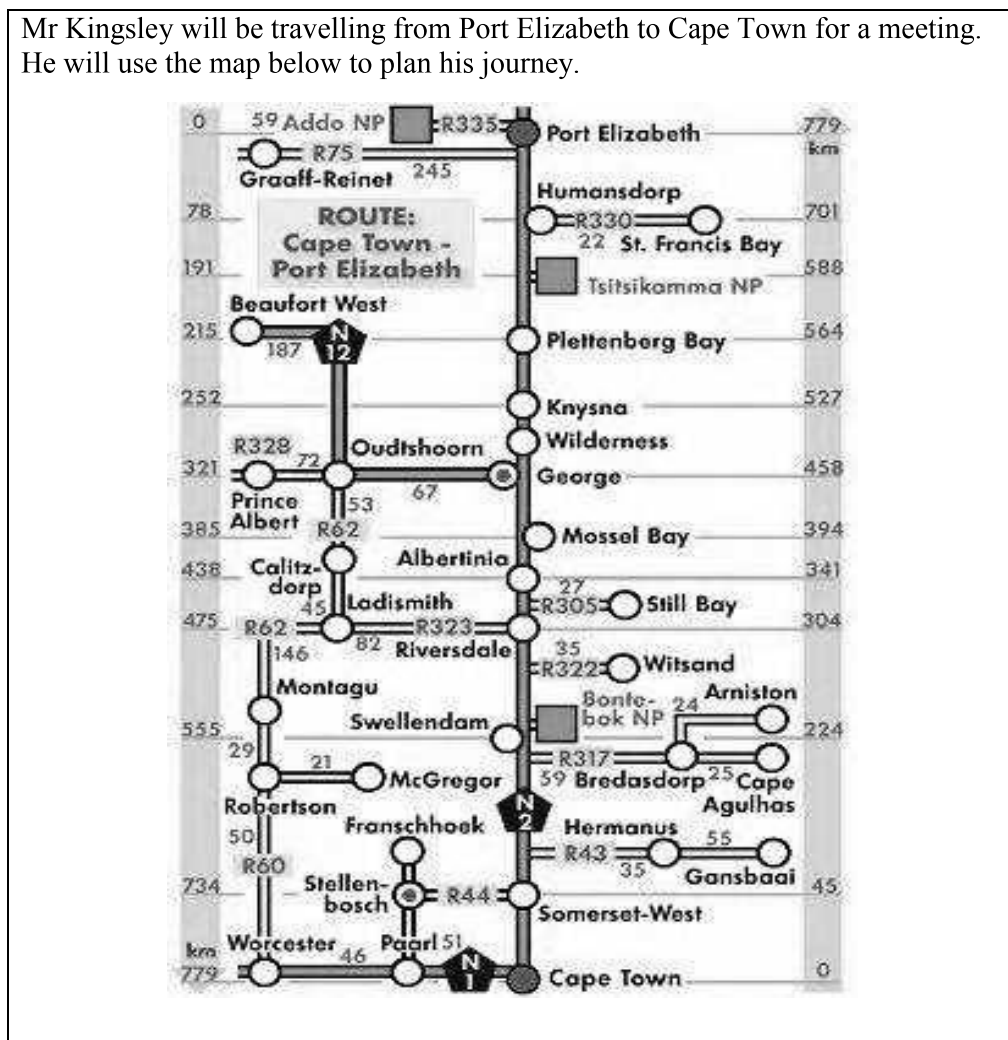
PICTURE OF A TIN OF CONDENSED MILK	DIAGRAM OF A TIN OF CONDENSED MILK WITH DIMENSIONS
	

[Adapted from <https://www.checkers.co.za/All-Departments/Food/>]

Use the information above to answer the questions that follow.

- 1.2.1 Determine the radius of the condensed milk tin. (2)
- 1.2.2 Convert 385g to kilograms. (2)

- 1.3 Mr Kingsley will be travelling from Port Elizabeth to Cape Town for a meeting. He will use the map below to plan his journey.



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

Use the map above to answer the questions that follow.

- 1.3.1 Identify the type of map used above. (2)
- 1.3.2 Name the national route between Port Elizabeth and Cape Town. (2)
- 1.3.3 Write down the actual distance between Port Elizabeth and Humansdorp. (2)
- 1.3.4 Mr Kingsley decides to visit his brother in McGregor before going home after the meeting in Cape Town. He takes the N1. The distance between Worcester and Robertson is 50 km.

- (a) Name two towns he will pass when travelling from Cape Town to McGregor. (2)
- (b) Calculate the total distance he will travel to McGregor from Cape Town. (2)

[20]

QUESTION 2

ANNEXURE A shows the layout plan of a conference room that is used by the College of Engineering staff.

Use ANNEXURE A to answer the questions that follow.



- 2.1 Determine how many people can be seated comfortably on the couch. (2)
- 2.2 Write down the number of chairs against the West wall. (2)
- 2.3 Determine the simplified ratio of the total number of tables to the number of chairs in the conference room, excluding the couch. (3)
- 2.4 Write down the number of power outlets available in this conference room. (2)
- 2.5 Determine the probability, as a percentage, of getting a telephone next to the overhead projector. (2)
- 2.6 One of the members attending the conference, worked inside the conference room and followed the following route:
- Turned right after entering the door
 - Walked towards the white board passing the floor shelving on his right
 - He turned left and took the fourth chair
- Write down the table number he is sitting at. (2)
- 2.7 The actual inside length of the conference room is 11 m.
- (a) Measure the inside length of the conference room on the layout plan, in cm. (2)
- (b) Hence, calculate the scale used in this layout plan. Round your answer to the nearest ten. (4)
- 2.8 Determine the probability, as a decimal, of selecting a chair around the table that is an odd number. (3)
- 2.9 Give ONE reason why there is a wall cabinet in the conference room. (2)

[24]

QUESTION 3

3.1 Adam wants to plaster and paint wall **A** and wall **B** of his garage.

The dimensions of the floor are $7,4 \text{ m} \times 4,3 \text{ m}$ with a wall height of $2,7 \text{ m}$.

PICTURE OF UNPLASTERED WALL OF GARAGE	DIAGRAM SHOWING GARAGE WITH DIMENSIONS
	

[Adapted from www.houseplanshelper.com]

NOTE: Plaster is a soft mixture of sand and cement and sometimes lime with water, for spreading on walls, ceilings, or other structures, to form a smooth hard surface when dried.

Use the information above to answer the questions that follow.

3.1.1 Calculate, in m^2 , the total surface area of the two walls that need to be plastered.

You may use the following formula:

$$\text{Area of a wall} = \text{length} \times \text{width} \quad (5)$$


3.1.2 The plaster on the walls has the same thickness of 12 mm .

Determine, in cm^3 , the volume of plaster required to plaster these two walls.

You may use the following formula:

$$\text{Volume of plaster} = \text{area of walls} \times \text{thickness of plaster} \quad (5)$$

- 3.2 Adam also intends painting the two walls using the Ultra Zerovoc interior latex paint. The information about the latex paint is given below.

INFORMATION	
<p>Latex paint</p> <ul style="list-style-type: none"> • Dry to the touch in about 1 hour, and there after you can safely recoat in 4 hours. • 1 ℓ paint will cover 6 metres squared (m^2) of wall. 	
<p>NOTE: 1 gallon = 3,785 ℓ</p>	
<p>[Adapted from https://www.dulux.ca/pro/products/interior-paint/ultra-zero-cov]</p>	

Use the information above to answer the questions that follow.

- 3.2.1 Convert 3,785 litres (ℓ) to millilitres (mℓ). (2)

- 3.2.2 It will take Adam 60 minutes to paint the two walls.

Determine the time that Adam must start painting if he wants to apply the second coat at 11:30. (3)

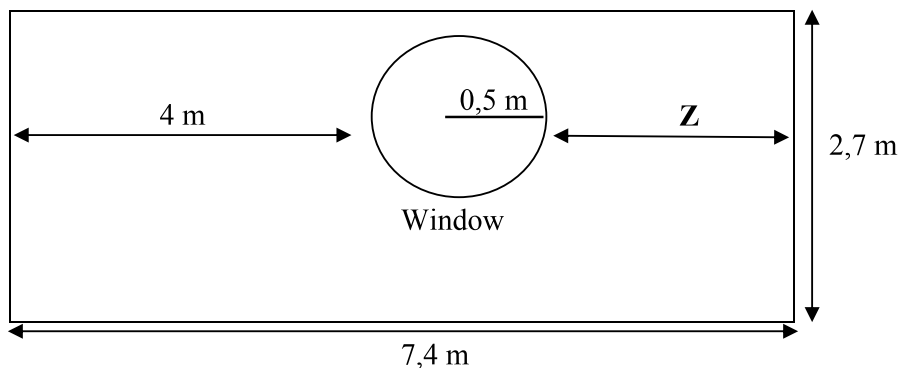
- 3.2.3 Adam rounded the total surface area up to 35 m^2 , in case he needs more paint.

Calculate the amount of paint Adam will use to paint the garage walls. Round the amount of paint needed up to the nearest 5 ℓ. (3)

- 3.3 Adam will install a circular window in the wall that has not been painted, as shown in the diagram below.
He intends painting the wall after installing the window.

The dimensions of the wall are $7,4 \text{ m} \times 2,7 \text{ m}$.

The shortest distance between the edge of the window and the edge of the wall is shown as Z in the sketch.



[Adapted from www.pella.com]

Use the information above to answer the questions that follow.

- 3.3.1 Determine the value of Z . (3)
- 3.3.2 Calculate the circumference, in cm, of the window.

You may use the following formula:

$$\text{Circumference of a circle} = \pi \times d,$$

where d = the diameter of the window, and using $\pi = 3,142$ (4)

[25]

QUESTION 4

- 4.1 Conrad and his three friends plan to drive to the Pilanesberg National Park. They will travel from Bloemfontein and stay at Pilanesberg Private Lodge.

ANNEXURE B shows the map of Pilanesberg National Park with an overview of where each Lodge or Resort is located in the park.

Use ANNEXURE B and the information above to answer the questions that follow.

- 4.1.1 Identify the type of scale used in the map. (2)
- 4.1.2 Name the game lodge closest to the airport. (2)
- 4.1.3 Give the general direction of Makorwane Hide from Pilanesburg Private Lodge. (2)
- 4.1.4 Conrad and his friends covers the distance of 521,6 km in 5 hours and 12 minutes. He states that their average speed is less than 120 km/h.

Verify, showing ALL calculations, whether his statement is valid.

You may use the following formula:

$$\text{Distance} = \text{speed} \times \text{time} \quad (5)$$

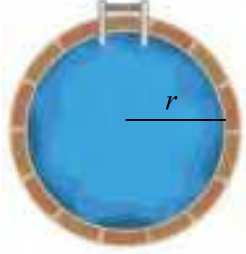
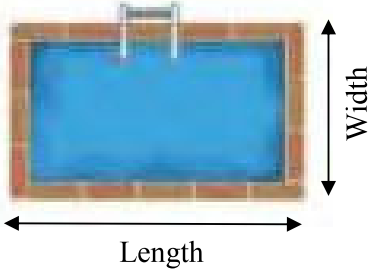
- 4.1.5 The distance from Bloemfontein to Pilanesberg is 521,6 km. The petrol fee for the trip to Pilanesberg and back will be shared equally amongst all friends.

The vehicle has a fuel economy consumption of 7,3 ℓ/100 km.

Calculate the total cost per person if the current fuel price per litre is R22,92. (6)

- 4.2 The caretakers of Pilanesberg National Park plan to build a cylindrical pool in one of the picnic sites to accommodate small children.

The pictures below show the existing rectangular swimming pool and a cylindrical swimming pool which the caretakers plan to build at the picnic site.

CYLINDRICAL SWIMMING POOL	RECTANGULAR SWIMMING POOL
	
Inner dimensions of the pool: Radius (r) = 4 m Depth = 1 m Tiles = 0,2 m \times 0,2 m (16 in a box)	Inner dimensions of the pool: Length = 8,2 m Width = 4,3 m Depth = 1,75 m
NOTE: $1\text{m}^3 = 1\,000\ \ell$	
[Adapted from https://pngtree.com]	

Use the information above to answer the questions that follow.

- 4.2.1 Calculate, rounded to the nearest litre, the difference in capacity of the two swimming pools.

You may use the following formulae:

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

$$\text{Volume of rectangular prism} = \text{length} \times \text{width} \times \text{depth}$$

(6)

- 4.2.2 The total inner surface of the cylindrical pool will be tiled. The tiler states that he requires more than 100 boxes of tiles to complete the tiling.

Verify, showing ALL calculations, whether his statement is valid.

You may use the following formula:

$$\text{Surface area of an open cylinder} = 3,142 \times \text{radius} \times (\text{radius} + 2 \times \text{depth})$$

(8)

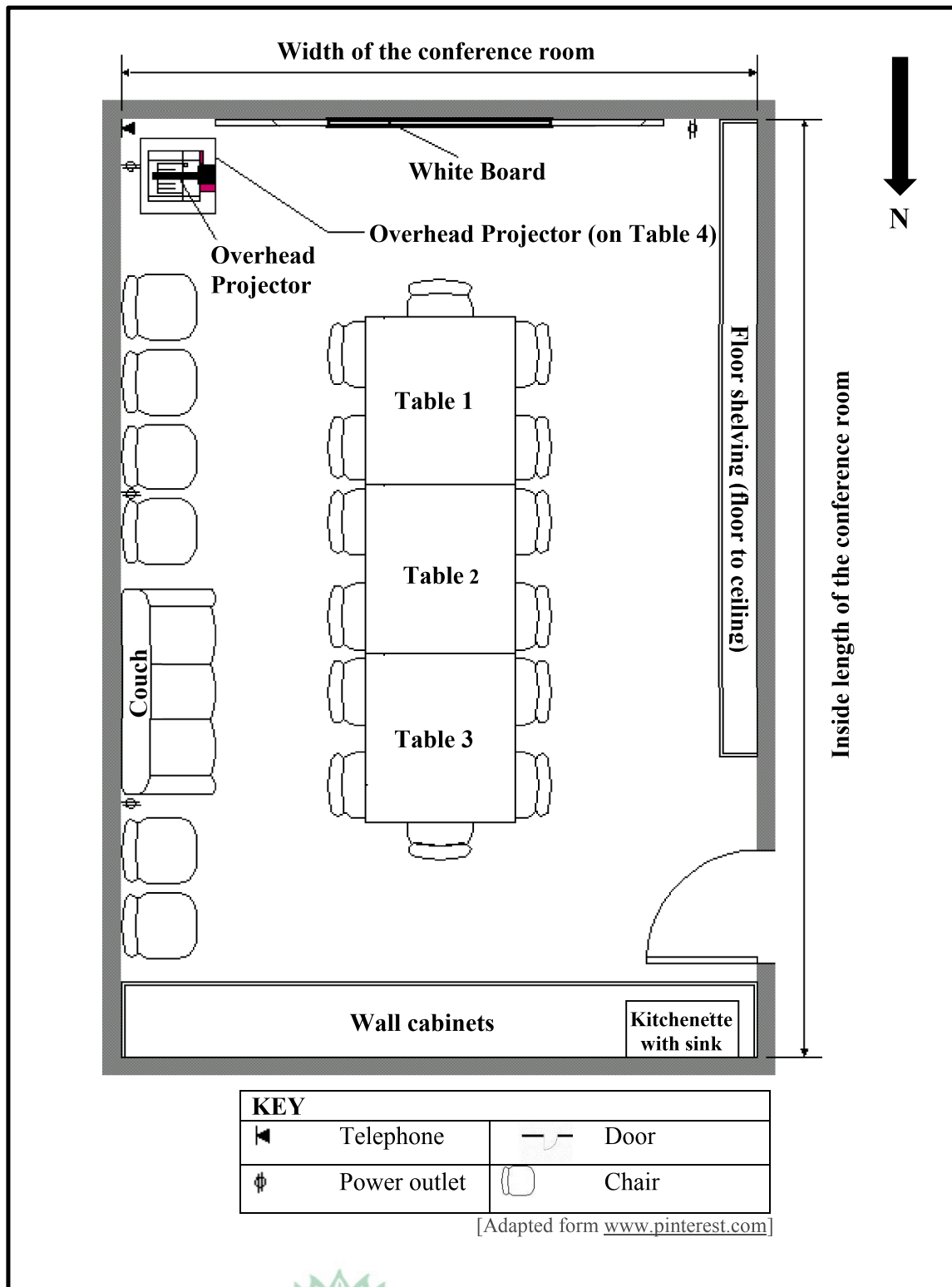
[31]

TOTAL: 100

ANNEXURE A

QUESTION 2

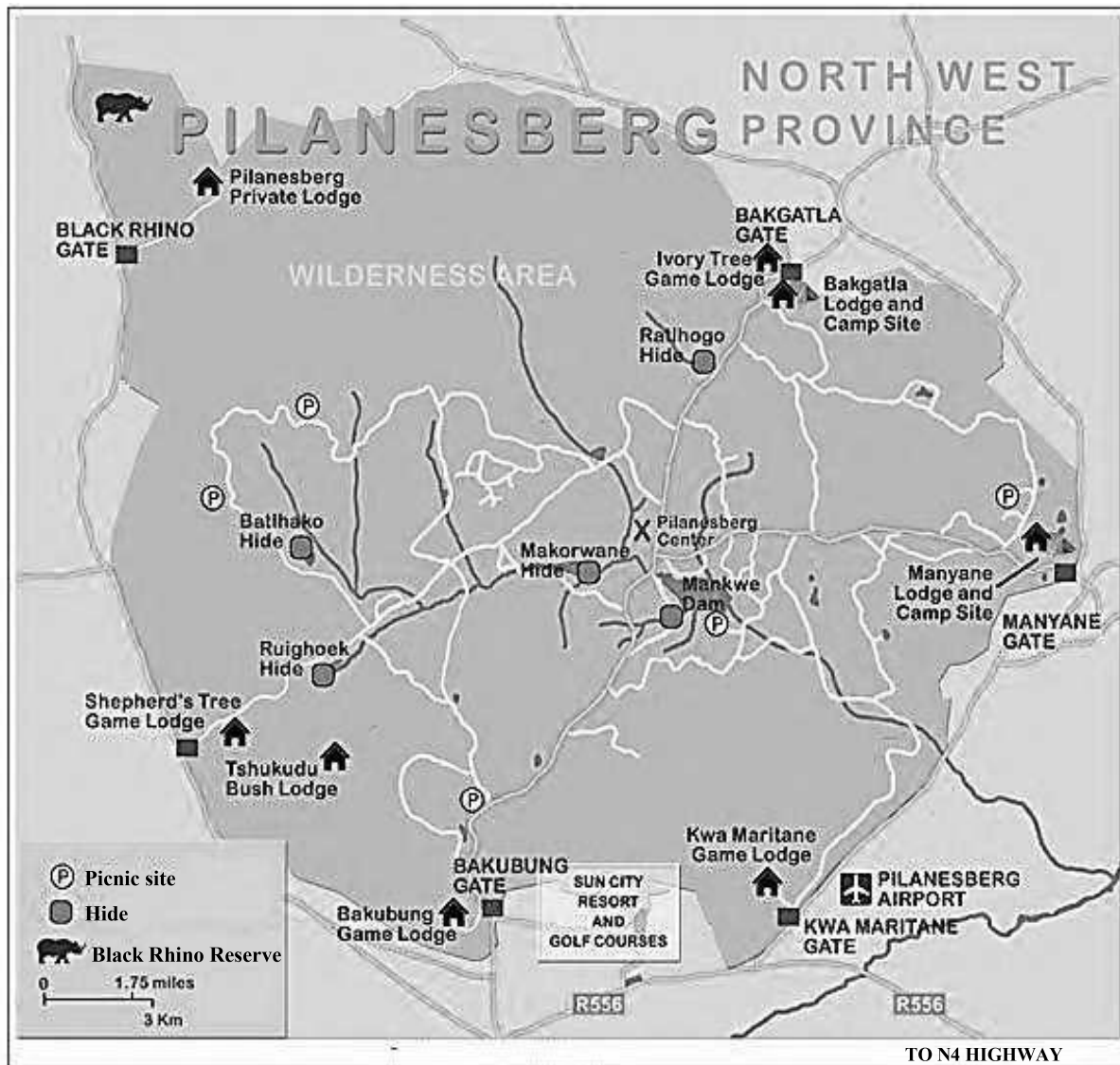
THE LAYOUT PLAN OF A BOARD ROOM



ANNEXURE B

QUESTION 4.1

THE MAP OF PILANESBERG NATIONAL PARK



[Adapted from <http://findtripinfo.com/africantravel/pilansberg-national-park-south-africa>]