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Province of the
EASTERN CAPE
EDUCATION

# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## NOVEMBER 2022

# MATHEMATICAL LITERACY P2

**MARKS:** 100

**TIME:** 2 hours

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This question paper consists of 11 pages.

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**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
4. Show ALL calculations clearly.
5. Maps and diagrams are NOT drawn to scale, unless otherwise stated.
6. Indicate units of measurement, where applicable.
7. Round off ALL final answers appropriately accordingly to the given context, unless stated otherwise.
8. Start EACH question on a NEW page.
9. Write neatly and legibly.

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## QUESTION 1

1.1 The table below shows the relationship between hours and the rate of charged per hour or part thereof. Tariffs include value added tax (VAT). Refer to the table and answer the questions that follow.

**TABLE 1: PARKING FEES FOR THIS AREA**

| HOURS | RATE CHARGED PER HOUR OR PART THEREOF: |
|---|---|
| 0–2 | R5,00 |
| 2–3 | R7,00 |
| 3–4 | R10,00 |
| 4–5 | R12,00 |
| 5–6 | R15,00 |
| 6–8 | R20,00 |
| More than 8 hours | R40,00 |

**NOTE:** Lost ticket penalty is R50,00 plus additional charges.

1.1.1 What is the rate charged if Mr Sokutu parked his car for 8 hours 15 minutes? (2)

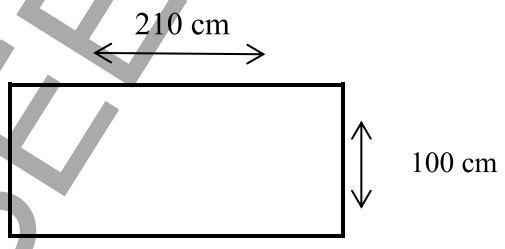
1.1.2 Write 8 hours and 15 minutes in hours. (2)

1.2 Mr Titi lost his ticket. When looking at the security cameras, they could see that he arrived at the mall at 11:30 am and that it was now 14:20 pm.

1.2.1 Determine how much time lapsed. (2)

1.2.2 Calculate how much Mr Titi was charged. (2)

1.3 Refer to the rectangular diagram below and answer the questions that follow.




Scale 1 : 100

1.3.1 Define the term *perimeter*. (2)

1.3.2 Determine the perimeter of the rectangular diagram in centimetres. (2)

1.3.3 Give the name of the scale found on the diagram. (2)

1.3.4 Explain what scale 1 : 100 means. (2)

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1.4 1.4.1 Identify from the list below a provincial road in South Africa.

They are as follows:

N10
R44
M75 (2)

1.4.2 Define the term *provincial road* in the above context. (2)
**[20]**

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**QUESTION 2**

2.1 The *tylosaurus proriger* was an ancient sea animal that is thought to have lived 85 million years ago. The top speed of the tylosaurus is about 64 km/h. This animal weighed 20 tons.

[Source: https: // kids.national geographic.com]

Refer to the diagram below. Use the scale to calculate the length of the animal below.




2.1.1 Write down the name of the scale used above. (2)

2.1.2 Use the scale to calculate the actual length of the animal in metres. (5)

2.1.3 This animal weighed 20 tons. Convert 20 tons to kilograms. (2)

2.2 Due to the global fish crisis only 30 000 tons of tuna may be caught annually. The true quantity of tuna that is caught, is closer to 48 000 tons per year.

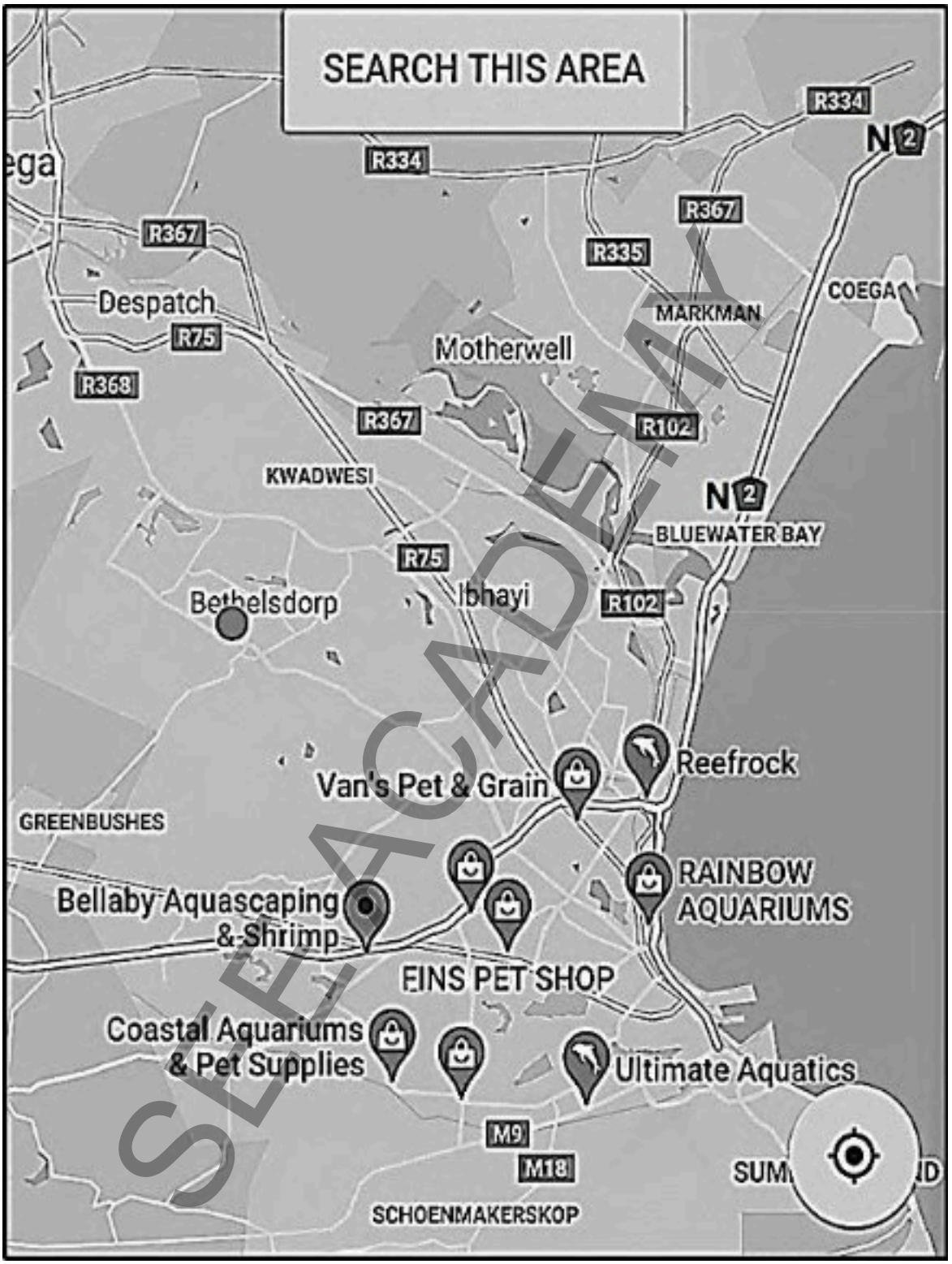
Calculate the percentage of illegal fishing in one year. (3)

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2.3 Refer to the map below and answer the questions that follow.




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2.3.1 Name the metropolitan roads found on the map. (2)

2.3.2 List the major national road that links Bluewater Bay to Coega. (2)

2.3.2 Identify the provincial road between Ibhayi and Despatch. (2)

2.3.4 How many provincial roads are indicated on the map? (2)

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2.3.5 Mr Thulani stated that the measured distance on the map from Motherwell to Bluewater Bay is 5 cm, and the actual distance is 13 km. He further said that the scale of the map is 1 : 260 000.

Verify, with the necessary calculations, if his statements are valid. (6)

2.3.6 Determine the time (in minutes and seconds) taken by the Thulani family to travel from Motherwell to Bluewater Bay, if they travelled by car at an average speed of 80 km/h for a total distance of 13 km.

Use the formula:

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

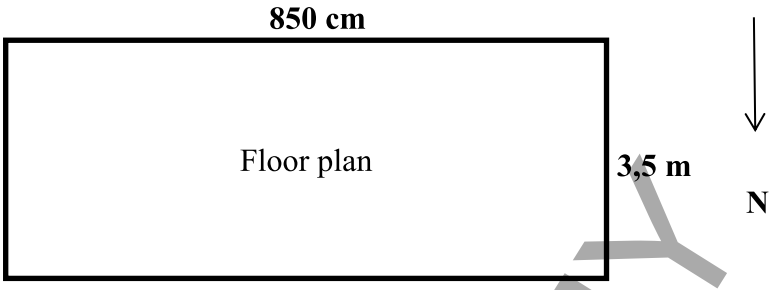
(4)
**[30]**

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**QUESTION 3**

3.1 The diagram below shows the floor plan of the living room of the Sokutu family's house.




Study the information below and answer the questions that follow.

| **Living room dimensions** | |
|---|---|
| Length | = 850 cm |
| Breadth | = 3,5 m |
| Height | = 10 cm |

3.1.1 Calculate the perimeter of the living room in mm. Use the formula below:

**Perimeter of rectangle = 2 × (length + breadth)** (3)

3.1.2 Calculate the area of the floor in $m^2$. Use the formula below:

**Area of rectangle = Length × Breadth** (3)

3.1.3 If a concrete floor which is 10 cm thick, is to be laid, how many cubic metres of concrete will be needed? You may use the formula:

**Volume = Length × Breadth × Height** (2)

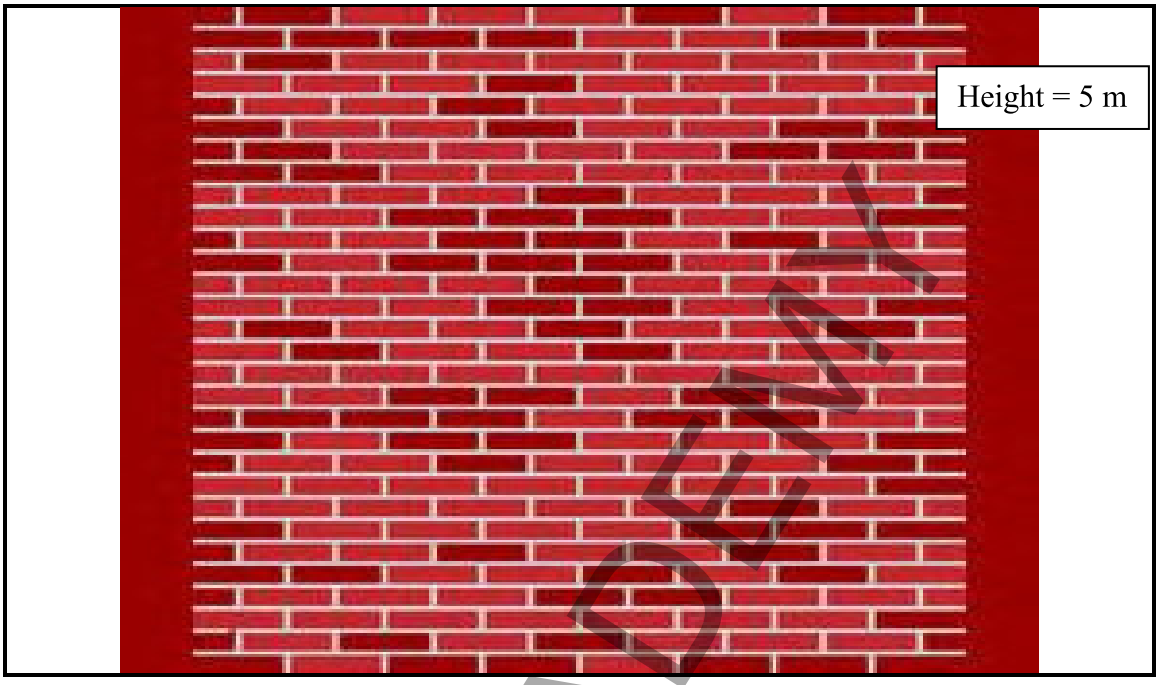
3.1.4 In which directions does the width of the living room walls face? (2)

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3.2 This diagram below represents a picture of the southern wall of the Sokutu family's living room. They carefully selected red bricks for the wall. This diagram is not drawn to scale. The following information indicated on the diagram below is useful for calculation.




[Adapted from vectorstock.com/red-brick wall/]

**Southern wall dimensions**:
Length = 850 cm
Height = 5 m
Dimensions of ONE brick: height = 73 mm length = 222 mm width = 106 mm
Area of ONE Brick = length × height
**NOTE:** Mortar is a workable paste which hardens to bind building blocks such as bricks.

3.2.1 Determine the number of bricks needed for the southern wall shown in diagram above.
**NOTE**: The dimensions of ONE brick exclude the mortar which is 10 mm.

You may use the following formula:

$$\textbf{No. of bricks} = \frac{\textbf{Area of the wall in } m^2}{\textbf{Area of ONE brick in } m^2}$$ (9)

3.2.2 The builder suggested that an additional 10% bricks should be ordered to cover for the wastage. Calculate the total number of bricks needed for the boundary wall. (2)

3.2.3 The price of one brick is R4,75, VAT included. Calculate the total amount to be spend on bricks. (Use your answer in QUESTION 3.2.2.) (2)
**[23]**

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**QUESTION 4**

4.1

| |
|---|
| Jonah Mouwer buys a small fish tank from Bay Aquariums for the price of R472,00 (VAT inclusive). He wants to present the dimensions of his fish tank on a piece of paper. His father, an architect by profession, told him to use a scale of 1 : 30. |

This table below shows the dimensions of a small fish tank. Study the table and answer the questions that follow.

**TABLE 2: MEASUREMENTS OF THE FISH TANK**

| DIMENSIONS OF THE SMALL FISH TANK IN METRES | DIMENSIONS ON A PIECE OF PAPER IN CM |
|---|---|
| Height = 0,45 m | **A** |
| Length = 1,05 m | **B** |
| Width = 0,3 m | Width = 1 cm |

**NOTE:** Volume = length × width × height

4.1.1 Refer to the table above. Use the scale to calculate the missing value **A** and **B**. (5)

4.1.2 Determine the volume of the small fish tank in $cm^3$. (3)

4.1.3 How many litres of water will the tank hold when it is 90% full?

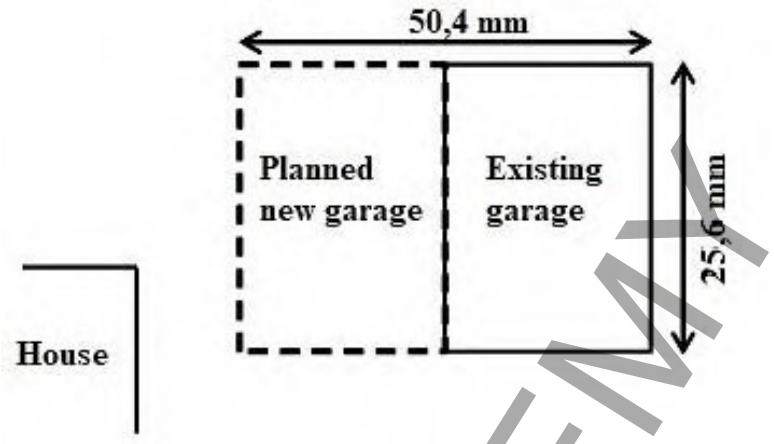
You may use: **1 $cm^3$ = 1 mℓ** (3)

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4.2 The winner was selected randomly. Mr Sokutu won the grand prize of R150 000. He submitted 1 000 entries out of a total of 10 000 entries for the competition. He further decided to use R90 000 from the R150 000 to extend his single garage into a double garage. He had a draughtsman draw up the plan. The plan is drawn below.




**Scale 1 : 150**

**NOTE:** Refer to the diagram above and use the scale.

4.2.1 Calculate the actual length and breadth of the existing and planned new garage in metres using the given scale. (6)

**Given:** Measure length = 50,4 mm
Measure width = 25,6 mm

4.2.2 Calculate the floor space he will now have available in his new double garage. Give your answer to the nearest square metres.
You may use the formula:

**Area of Rectangle = Length × Breadth** (3)

4.3 Determine the probability of Mr Sokutu not winning the competition, taking into account the number of entries he submitted. Give your answer in percentage format. (3)

4.3.1 What is the probability of Mr Sokutu winning the competition? Choose from the table below.

| | | | | |
|---|---|---|---|---|
| Impossible | Unlikely | Even Chance | Likely | Certain |

(2)

4.3.2 Write 10% to 90% in simplified ratio format. (2)

**[27]**

**TOTAL: 100**

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