



**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2020

**MATHEMATICAL LITERACY P2
(EXEMPLAR)**

MARKS: 75

TIME: 1½ hours



This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully and answer ALL the questions.

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. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
9. Write neatly and legibly.



QUESTION 1

1.1 A group of Grade 10 learners at Uviwe High School are planning to bake muffins to sell on the market day at their school.

Ingredients used to make 12 muffins:

2 cups all-purpose flour

3 teaspoons baking powder

½ teaspoon salt

¾ cup white sugar

1 egg

1 cup milk

¼ cup vegetable oil

Preparation time: 10 minutes

Baking time: 25 minutes

Pre heat oven to 400 °F

Conversion table:

1 cup = 250 ml, 1 tablespoon = 15 ml and 1 teaspoon = 5 ml

Use the information above to answer the following questions.

1.1.1 Determine how much white sugar (in ml) will be used. (2)

1.1.2 Calculate the number of cups of vegetable oil that they will use to make 2 dozen of muffins. (3)

1.1.3 If they start making the muffins at 10h18; when will they finish baking the first 12 muffins? (3)

1.1.4 Convert 400 °F into °C.

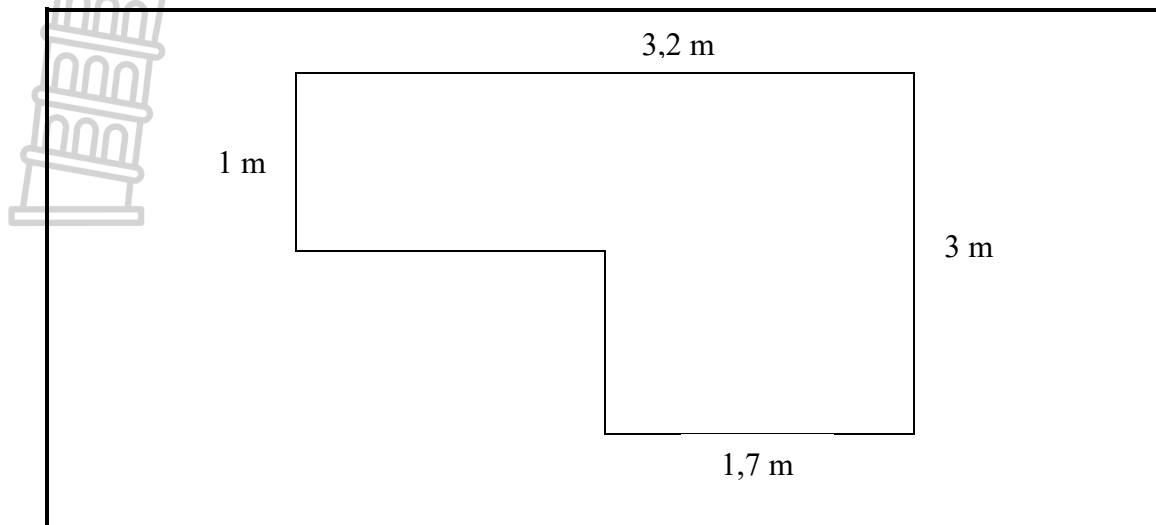
You may use the formula:

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32^{\circ}) \div 1,8 \quad (3)$$

1.1.5 Convert the measurement for milk into litres. (3)

1.1.6 Give any TWO reasons why the Grade 10 learners decided to sell muffins at the market day. (4)

- 1.2 One of the members of the school's governing body members (SGB) has a fish pond at the back of her house. The dimensions and the shape of the fish pond are given in the diagram below.



- 1.2.1 The SGB member claims that the circumference of the pond is 8,7 m. Verify, with the necessary calculations, whether her statement is correct or not. (4)

- 1.2.2 Calculate the area covered by the pond.

You may use the formula: **Area = length x width** (3)

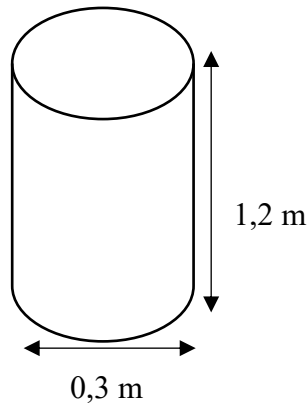
- 1.2.3 Determine, with the necessary calculations, how much water (in litres) will fill the pond if it is 40 cm deep.

NOTE: Volume = length x width x height and $1 \text{ cm}^3 = 1 \text{ ml}$ (5)
[30]



QUESTION 2

The Buffalo City Metropolitan (BCM) municipal council decided to make cardboard boxes available for the recycling of paper. The height of the box is 1,2 m.



2.1 What is the radius of the circle? (2)

2.2 The class monitor in your class claims that the volume of the bin will be more than 80 ℓ, Verify with necessary calculations, whether his statement is valid or not.

Use the formula:

Volume = Area of base x height,

NOTE: 1 m³ = 1 000 ℓ

Area of the circle = πr^2 where $\pi = 3,142$

Your answer must be given in litres (ℓ). (6)

2.3 Calculate the circumference of the base of the bin. Write your answer in cm.

Use the following formula:

Circumference = πd ; where $\pi = 3,142$ (3)

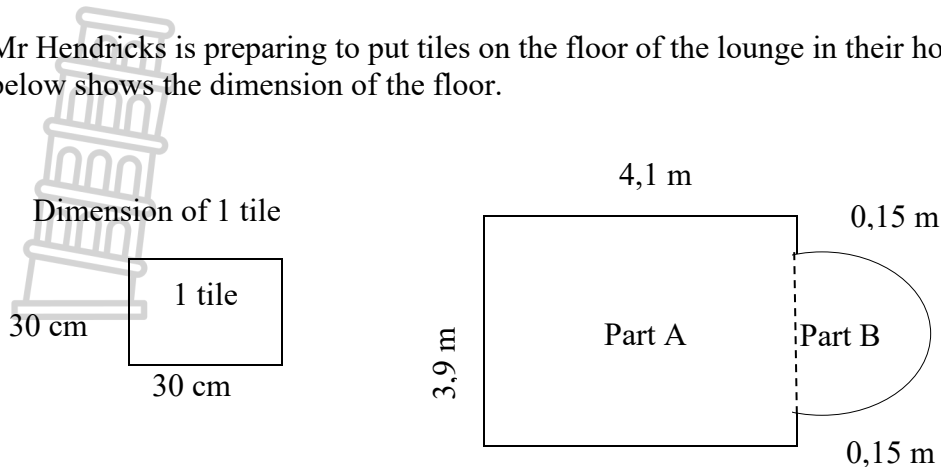
2.4 Give ONE reason why it is important for people to recycle. (2)

[13]



QUESTION 3

Mr Hendricks is preparing to put tiles on the floor of the lounge in their house. The picture below shows the dimension of the floor.

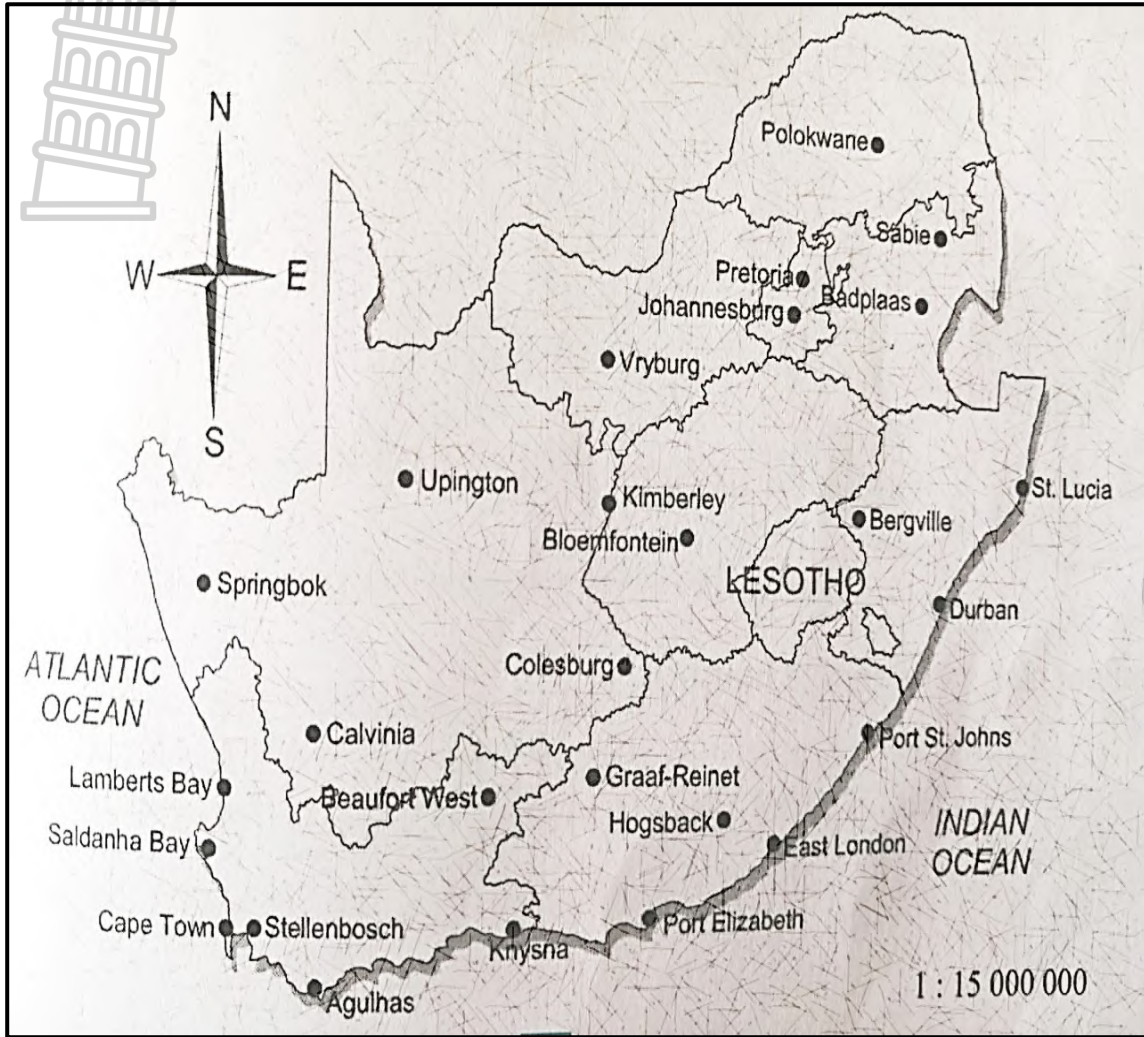


- 3.1 What shapes can you identify from the diagram above? (2)
- 3.2 Use calculations to determine the diameter of part **B**. (3)
- 3.3 Calculate the total area of the floor. (3)
- 3.4 Determine the area to be tiled if its only part A that will be tiled.
- Use the formula: **Area = length x breadth** (3)
- 3.5 If the area of one tile is 30 cm x 30 cm, calculate the number of tiles that would be needed to tile part A. (5)
- 3.6 There are 10 tiles in one box. Mr Hendricks and his wife claims that they are going to use exactly 18 boxes. Verify, with the necessary calculations, whether the statement is valid or not. (4)

[20]

QUESTION 4

Refer to the map of South Africa below and answer the following questions.



- 4.1 What type of the scale is given in the diagram and interpret the given scale? (3)
- 4.2 Write down the general direction of Badplaas from Colesburg. (2)
- 4.3 Use the given scale and determine the actual straight line distance between East London and Bloemfontein. Show ALL calculations and give your answer in km. (4)
- 4.4 In which province is Stellenbosch on the map? What is the probability that this province will be randomly selected in South Africa? Write your answer correct to TWO decimal places. (3)

[12]

TOTAL: 75



Province of the
EASTERN CAPE
EDUCATION

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MARKING GUIDELINE
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Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification/Reason/Explain
S	Simplification
RD	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding Off
AO	Answer only
NPR	No penalty for rounding OR omitting units

This marking guideline consists of 5 pages.

QUESTION 1 [30 marks]			
Quest.	Solution	Explanation	Topic and Level
1.1.1	$\text{White sugar} = \frac{3}{4} \text{ cup}$ $= \frac{3}{4} \times 250 \text{ ml} \quad \checkmark\text{M}$ $= 187 \text{ ml} \quad \checkmark\text{CA}$	1 M Multilpy 1 CA Answer (2)	M L3
1.1.2	$2 \text{ dozen} = 12 \times 2 = 24 \quad \checkmark\text{A}$ $24 \text{ muffins} = \frac{1}{4} \times 2 \text{ cups} \quad \checkmark\text{M}$ $= \frac{1}{2} \text{ cup} \quad \checkmark\text{A}$	1 A total of muffins 1 M Multiply 1A Answer (3)	M L3
1.1.3	$\text{Total time} = 10 + 25 = 35 \text{ min} \quad \checkmark\text{M}$ $= 10\text{h}18 + 35 \text{ min} \quad \checkmark\text{M}$ $= 10\text{h}35 \quad \checkmark\text{CA}$	1 M Adding time 1 M Addition 1 CA Answer (3)	M L2
1.1.4	$\text{Degrees Celsius} = (^\circ\text{F} - 32^\circ) \div 1,8 \quad \checkmark\text{SF}$ $= (400^\circ\text{F} - 32^\circ) \div 1,8 \quad \checkmark\text{M}$ $= 204,4 \text{ }^\circ\text{C} \quad \checkmark\text{A}$	1 SF Substitution 1 M Method 1 A Answer (3)	M L2
1.1.5	$1 \text{ cup milk} = 250 \text{ ml} \quad \checkmark\text{SF}$ $= \frac{250}{1\,000} \quad \checkmark\text{M}$ $= 0,25 \text{ l milk} \quad \checkmark\text{A}$	1 SF Substitution 1 M divide by 1 000 1 A Answer (3)	M L3
1.1.6	To raise school funds $\checkmark\checkmark\text{O}$ To complete school project $\checkmark\checkmark\text{O}$ OR Accept any logical explanation	2 O Opinion 2 O Opinion (4)	M L4
1.2.1	$\text{Circumference} = 3,2 + 3 + 1,7 + 2 (\checkmark\text{A}) + 1$ $+ 1,5 (\checkmark\text{A}) \checkmark\text{M}$ $= 12,4 \text{ m} \quad \checkmark\text{CA}$	2 A for 1,5 m and 2 m 1 M Addition 1 CA Answer (4)	M L3
1.2.2	$\text{Area} = l \times b$ $= (3,2 \times 3) - (2 \times 1,5) \quad \checkmark\text{SF}$ $= 9,6 - 3 \quad \checkmark\text{M}$ $= 6,6 \text{ m}^2 \quad \checkmark\text{CA}$	1SF Substitution 1 M Subtracting 1 CA Answer (3)	M L2
1.2.3	$\text{Height } 40 \text{ cm} = 0,4 \text{ m} \quad \checkmark\text{C}$ $\text{Volume} = 3,2 \times 3 \times 0,4 \quad \checkmark\text{SF}$ $= 3,84 \text{ m}^3 \quad \checkmark\text{M}$ $= 3\,840\,000 \text{ cm}^3$ $= \frac{3\,840\,000}{1\,000} \text{ ml} \quad \checkmark\text{S}$ $= 3\,840 \text{ litres} \quad \checkmark\text{C}$	1C Conversion 1SF Substitution 1 M Method 1 S Simplification 1C Conversion (5)	M L3
		[30]	

QUESTION 2 [13 marks]			
Quest.	Solution	Explanation	Topic and Level
2.1.	$\text{Radius} = \frac{1}{2} \times \text{diameter} \checkmark M$ $= \frac{1}{2} \times 0,3 \text{ m}$ $= 0,15 \text{ m} \checkmark CA$	1M to get radius 1 CA Answer (2)	M L2
2.2	$\text{Volume} = \pi r^2 \times h \checkmark SF$ $= 3,142 \times (0,15)^2 \times 1,2 \text{ m} \checkmark \checkmark M$ $= 0,084 834 \text{ m}^3 \checkmark C$ $= 84,834 \text{ l} \checkmark CA \checkmark A$	1 SF Substitution in 1 M Multiplication 1 M Multiplication 1 C Conversion 1CA Answer 1 A correct unit (6)	M L3
2.3	$\text{Circumference} = \pi d$ $= 3,142 \times 0,3 \checkmark SF$ $= 0,9 426 \text{ m} \checkmark S$ $= 94,26 \text{ cm} \checkmark C$	1 SF Substitution 1S Simplification 1C Conversion (3)	M L2
2.4	Job Creation $\checkmark \checkmark O$ <p style="text-align: center;">OR</p> To keep the environment clean. Accept any other logical explanation.	2 O Opinion (2)	M L4
[13]			



QUESTION 3 [20 marks]			
Quest.	Solution	Explanation	Topic and Level
3.1	Rectangle ✓A Circle ✓A	1A 1 st shape 1A 2 nd shape (2)	M L2
3.2	Diameter = $3,9 - (0,15 \times 2 \text{ m})$ ✓SF ✓M = 3,6 m ✓A	1SF Substitution 1M Method 1A and Correct unit (3)	M L2
3.3	Radius (r) = 1,8 m Area of floor = $(3,9 \times 4,1) + \frac{1}{2} \pi r^2$ ✓S = 15,99 + 5,09 m ✓M = 21,08 m ✓CA	1S Substitution 1M Addition 1CA Answer (3)	M L3
3.4	Area of Part A = $3,9 \times 4,1$ ✓SF ✓M = 15,99 ✓A	1 SF Substitution 1M Multiplication 1A Answer (3)	M L2
3.5	Area of one tile = 30×30 = $0,3 \times 0,3$ ✓C = 0,09 m ✓A Total of tiles = $\frac{15,99}{0,09}$ ✓M = 177,7 ✓CA = 178 tiles ✓R	1C Conversion 1A Area of one tile 1M Division 1CA Answer 1R Rounding (5)	M L3
3.6	Number of boxes = $\frac{178}{10}$ ✓M = 17,8 ✓A = 18 boxes ✓R The statement is valid. ✓C	1M Divide by 10 1A number of boxes 1 R Correct rounding 1C Conclusion (4)	M L3
		[20]	

QUESTION 4 [12 marks]			
Quest	Solution	Explanation	Topic and Level
4.1	Ratio scale ✓A 1 unit on scale represents 15 000 000 units in reality ✓✓A	1A Correct scale 2A Interpretation (3)	MP L2
4.2	North East ✓✓A	2A correct direction (2)	MP L2
4.3	4 cm or 40 mm ✓A Actual Distance = $4 \times 15\,000\,000$ ✓M = 60 000 000 cm = $\frac{60\,000\,000}{100\,000}$ ✓M = 600 km ✓CA [Allow variance from 3,9 – 4,1 km]	1A Accurate measure 1M Multiplication 1M Dividing 1CA Answer (4)	MP L3
4.4	Western Cape ✓A Probability = $\frac{1}{9}$ ✓M = 0,11 ✓R	1A Correct province 1M Division 1R Rounding (3)	P L3
		[12]	
		TOTAL: 75	

