GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

JUNE EXAMINATION
GRADE 12

2025

MATHEMATICAL LITERACY

(PAPER 2)

MATHEMATICAL LITERACY P2

C2602E

TIME: 2 hours

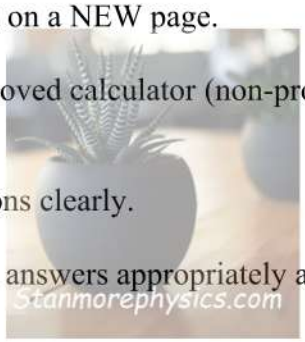
MARKS: 100

13 pages

X05

INSTRUCTIONS AND INFORMATION

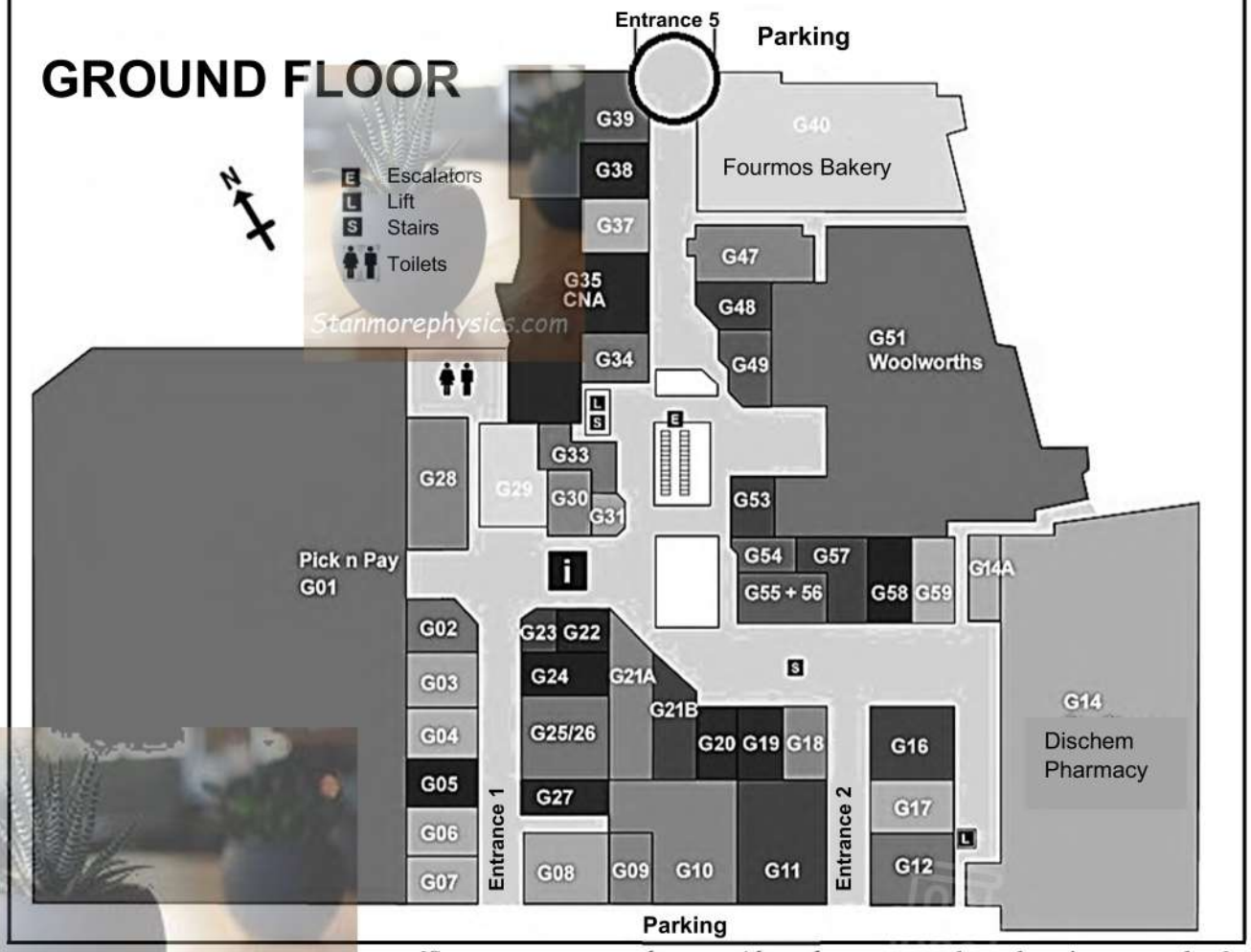
1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the MAP on page 6 to answer QUESTION 2.
3. Number your answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable 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 necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.



QUESTION 1

1.1 Goitsemang visited her local shopping centre. Below is a layout plan of the shopping centre.

GROUND FLOOR LAYOUT PLAN OF BENMORE GARDENS SHOPPING CENTRE, SANDTON



[Source: *www.megaplex.co.za/shops-benmore-gardens-shopping-centre.htm*]

Study the information above and use it to answer the questions that follow.

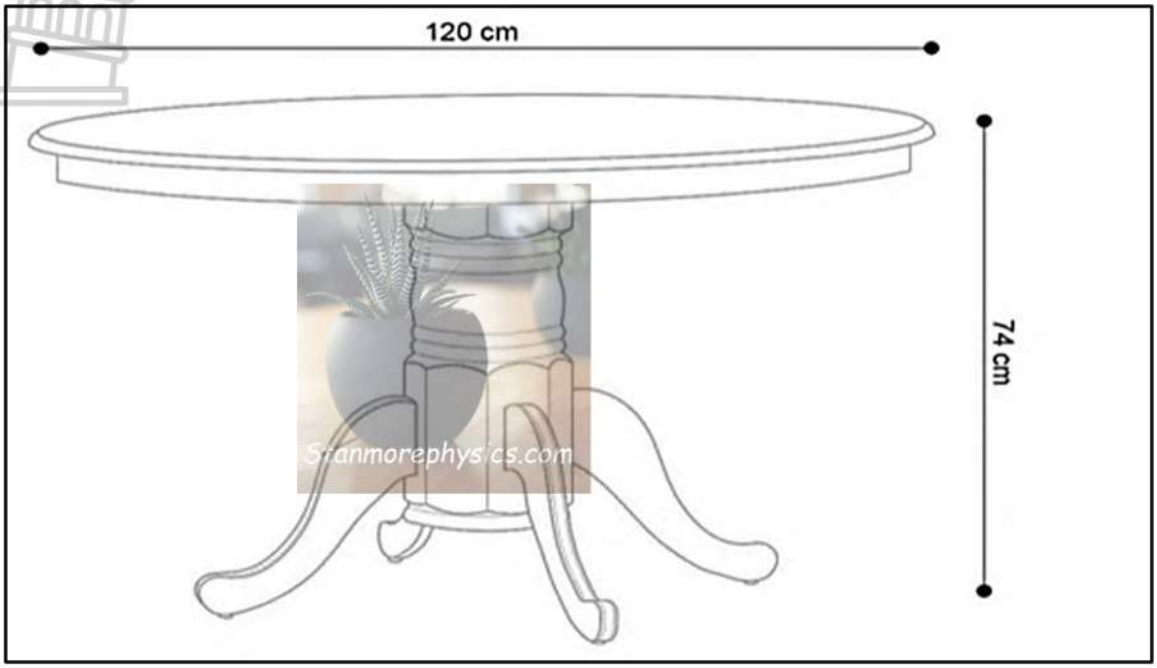
1.1.1 Explain the meaning of G01 below the Pick 'n Pay label. (2)

1.1.2 Give the general direction of Entrance 5 from G10. (2)

1.1.3 How many lifts are there on the ground floor? (2)

1.1.4 Write down the name of the store labelled G35. (2)

1.2 While at the shopping centre, Goitsemang purchased a small dining table. The dining table has a diameter of 120 cm and a height of 74 cm. Below is a picture of the dining table.



[Source: ***https://decofurnsa.co.za/products/oliver-120cm-round-dining-table***]

Use the information given above to answer the following questions.

1.2.1 Write down only the letter from the options given below, that would be used to calculate the area of the circular top part of the table.

A $2 \times \pi \times r^2 + 2 \times \pi \times r \times h$

B $\pi \times r^2 \times h$

C $\pi \times r^2$

D $2 \times \pi \times r$ (2)

1.2.2 Write down, in simplified form, the ratio of the diameter of the table top to that of the height of the table. (2)

1.2.3 Determine the radius of the table top in centimetres (cm). (2)

1.2.4 Write down the height of the table in millimetres (mm). (2)

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

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS

A	The amount of 2-Dimensional space occupied by a 2-D shape
B	The distance around a circle
C	A straight line passing through the centre of a circle and touching the circle at both ends
D	The distance from the centre of a circle to any point on the circumference of the circle

Use TABLE 1 above and match an explanation or a definition with EACH of the concepts below. Write only the letter (A – D) next to (a) and (b) e.g. (c) E.

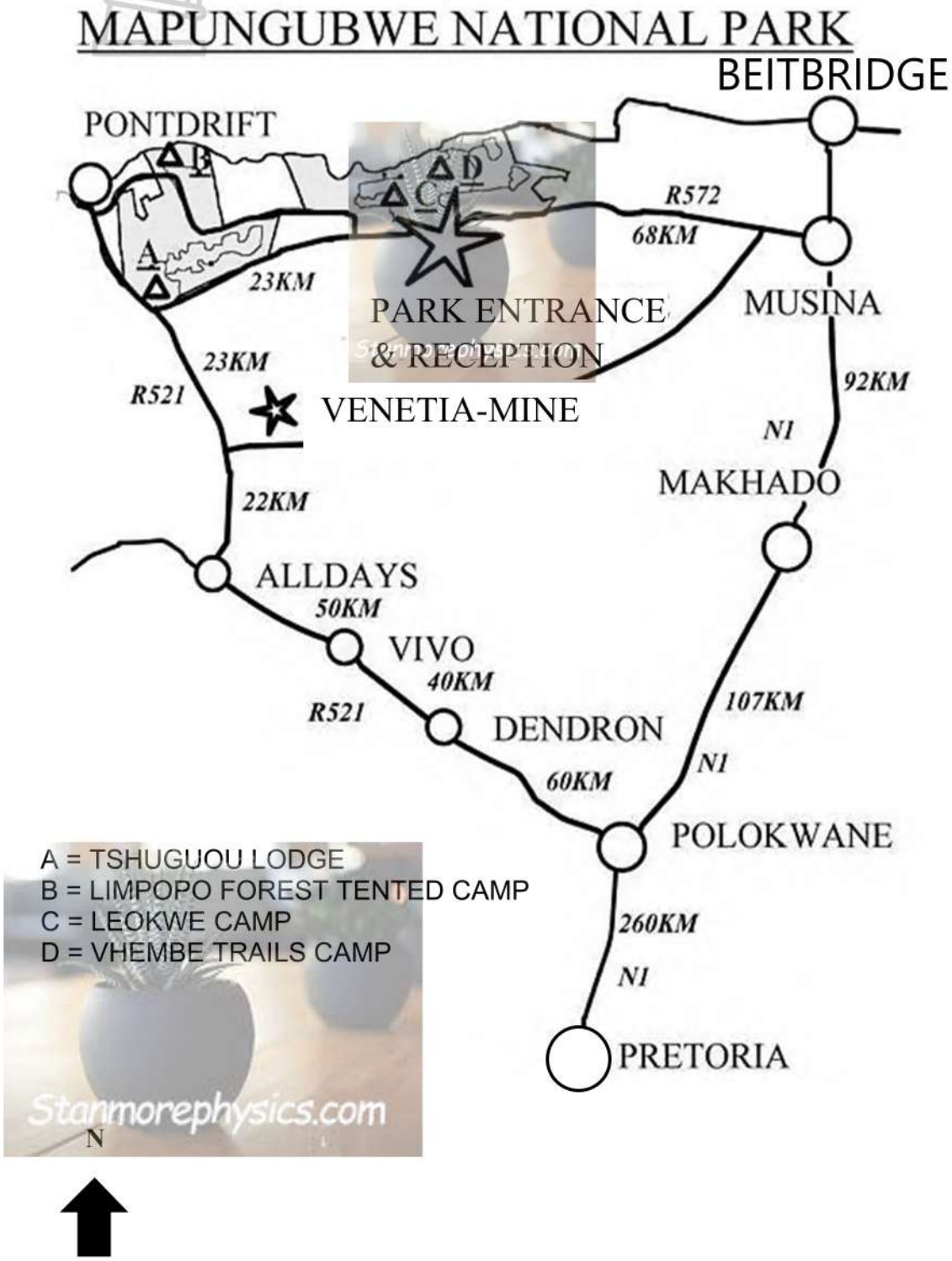
(a) Radius (2)

(b) Circumference (2)

[20]

QUESTION 2

The map below shows how to travel from Pretoria to Mapungubwe National Park by car.



Beria and his two sons, Jordan and Benjamin, drove from Pretoria to the Mapungubwe National Park to participate in an annual birdwatching contest and a marathon.

Use the MAP on page 6 and the information above to answer the following questions.

2.1 Determine, in kilometres, the total distance between Pretoria and Makhado. (2)

2.2 In which South African province is the Mapungubwe National Park found? (2)

2.3 Which town is located north-east of the park entrance and reception? (2)

2.4 It took them 0,8 hours to travel from Musina to the park entrance.
Calculate the average speed of their vehicle in kilometres per hour (km/h).

You may use the formula: $\boldsymbol{speed = \frac{distance}{time}}$ (3)

2.5 Give a set of directions when driving from Venetia mine to the park entrance and reception. (4)

2.6 Determine the scale of the map by using the distance between Musina and Makhado as a reference. Round-off your answer to the nearest hundred thousand. (5)

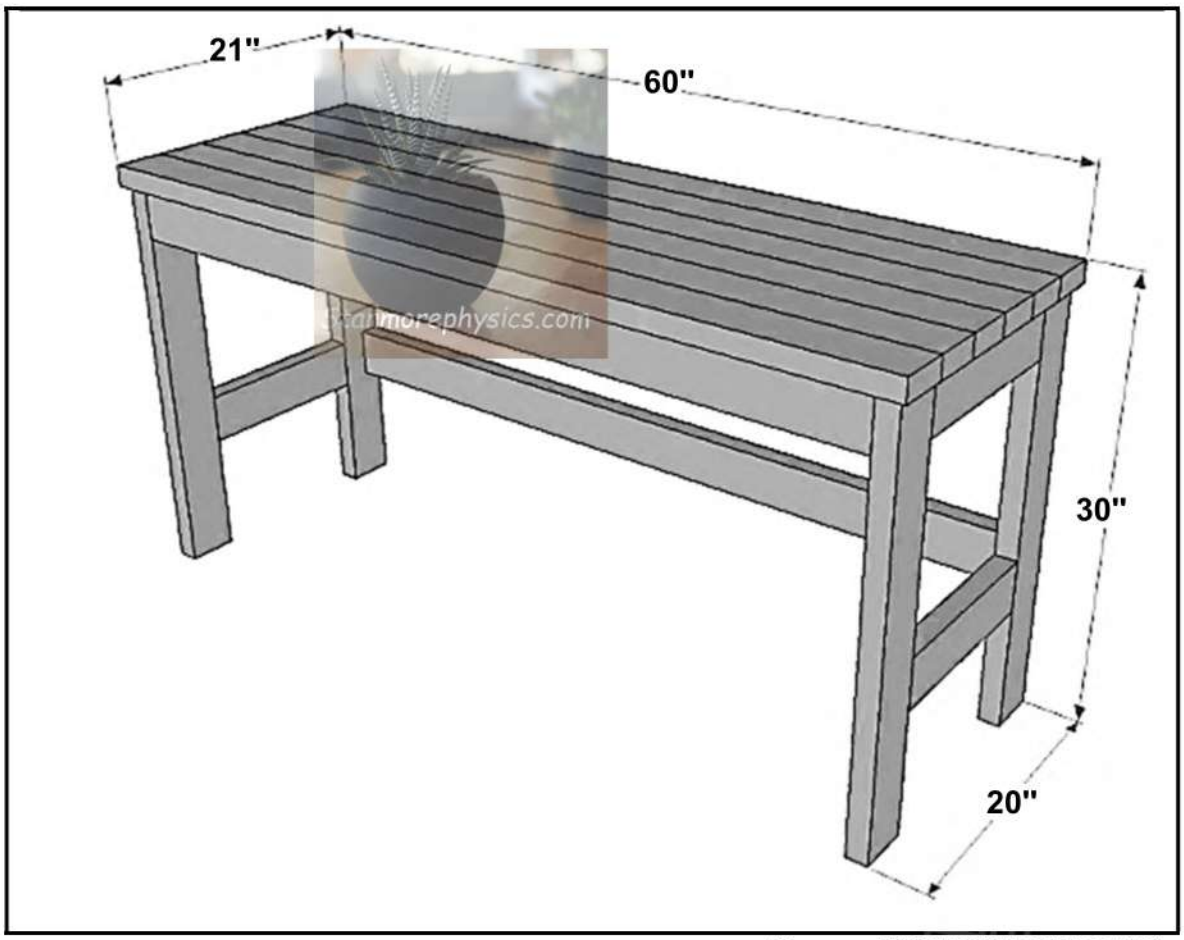
2.7 Give ONE disadvantage of working with a number/ratio scale. (2)

[20]

QUESTION 3

3.1 Bonganjalo enjoys doing DIY (Do-It-Yourself) Projects. His latest project is to build a desk.

A picture of a desk, he is hoping to build, is shown below. All the dimensions of the desk are given in inches.



[Source: *MORELIKEHOME.NET*]

NOTE: 1" (1 inch) = 2,54 cm

Refer to the picture as well as the information given above to answer the questions that follow.

3.1.1 Convert the length of the desk to centimetres (cm). (2)

3.1.2 Bonganjalo does not want a desk that is higher than 0,77 m.

Use calculations to verify whether the desk meets his requirements. (4)

3.1.3 To build the top part of the desk, Bonganjalo will use planks that are 2 m in length and cut them to the correct size.

Calculate the total length of wood wasted from the six (6) planks used to build the top of the desk.

NOTE: A plank is a flat rectangular piece of wood that is longer and higher than it is wide. (6)

3.2 Below is the cutting list of wood needed to build a desk.

CUTTING LIST OF WOOD NEEDED TO BUILD A DESK	
Description	**Quantity to be purchased**
Legs	4 × 28,5”
Top supports	2 × 17”
Table top	6 × 60”

3.2.1 According to Bonganjalo’s calculations, 13 m of wood would be enough for the completed desk (excluding the off-cuts).

(An off-cut is a piece of wood that is left over after a larger piece is cut off or processed.)

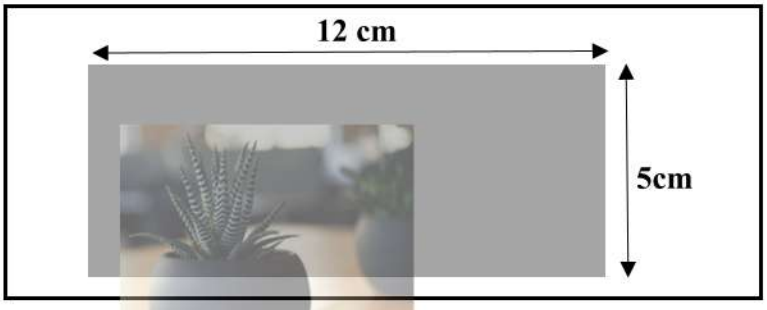
By making use of the information given above and the appropriate calculations, determine whether Bonganjalo is correct in his calculations. (9)

3.2.2 Write down ONE hand-held tool that can be used by Bonganjalo to build the desk. (2)

[23]

QUESTION 4

4.1 Tumisho is a warehouse manager for the Perfect Seat company that sells seat cover for passenger vehicles. The warehouse has a rectangular shape with the dimensions as indicated in the diagram below, with a scale of 1 : 90.



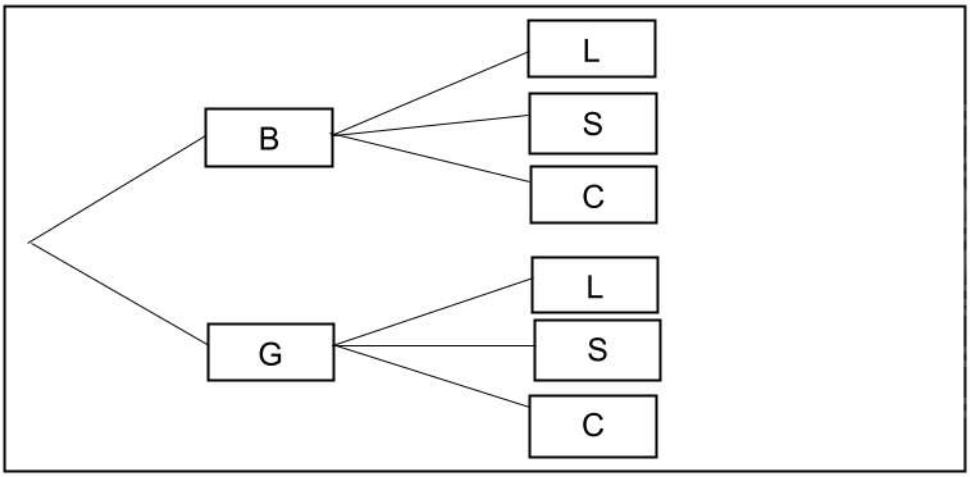
4.1.1 Calculate the total length of the warehouse.

You may use: **Total length = 2 × (length + width)** (2)

4.1.2 The scale used to draw the warehouse is 1 : 90. Explain the meaning of the scale 1 : 90. (2)

4.1.3 Use the scale provided to calculate, in metres, the actual length of the warehouse. (4)

4.2 The manager has the following seat cover options in stock: colour options of black (B) and grey (G), and seat texture options of leather (L), suede (S) and cloth (C). The possible outcomes are summarised in the tree diagram below.



4.2.1 What are the total number of possible outcomes? (2)

4.2.2 Determine, as a percentage, the probability of buying black seat covers. (3)

4.3 The manager created the following cake recipe to give to one of her staff members on her birthday.

Preperation time: 10 minutes

Cooking time: 30 minutes

Yield: 210 mm^2 cake

Servings: 12 people

1 cup = 250 ml

1 teaspoon = 5ml

Ingredients:

1 cup white sugar

2 large eggs

2 teaspoons vanilla essence ½

cup of unsalted butter ½ cup

milk

1½ cup ready cake mix

4.3.1 How many cups of ready cake mix will be required to bake a cake that will serve 48 people? (3)

4.3.2 Determine, in mm, the length of the cake.

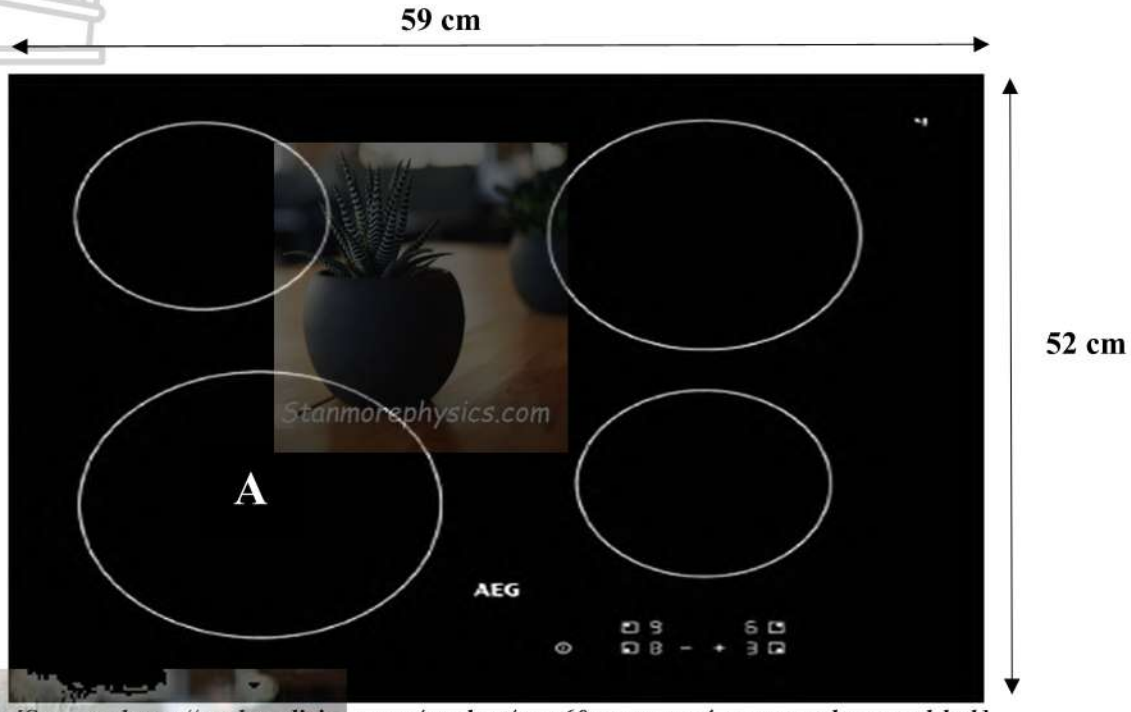
Use the formula: **Area = side × side** (3)

4.3.3 The manager arrived home at 14:24 and immediately started preparing and baking the cake. Will she have a finished product before the birthday party starts at 15:04? Show ALL your calculations to justify your answer. (4)

[23]

QUESTION 5

5.1 **Mikayla renovated her kitchen. She replaced her old stove with a modern stylish electric stove. The top part of the new stove is shown below.**



[Source: *https://modern-living.co.za/product/aeg-60cm-ceran-4-zone-touch-control-hob*]

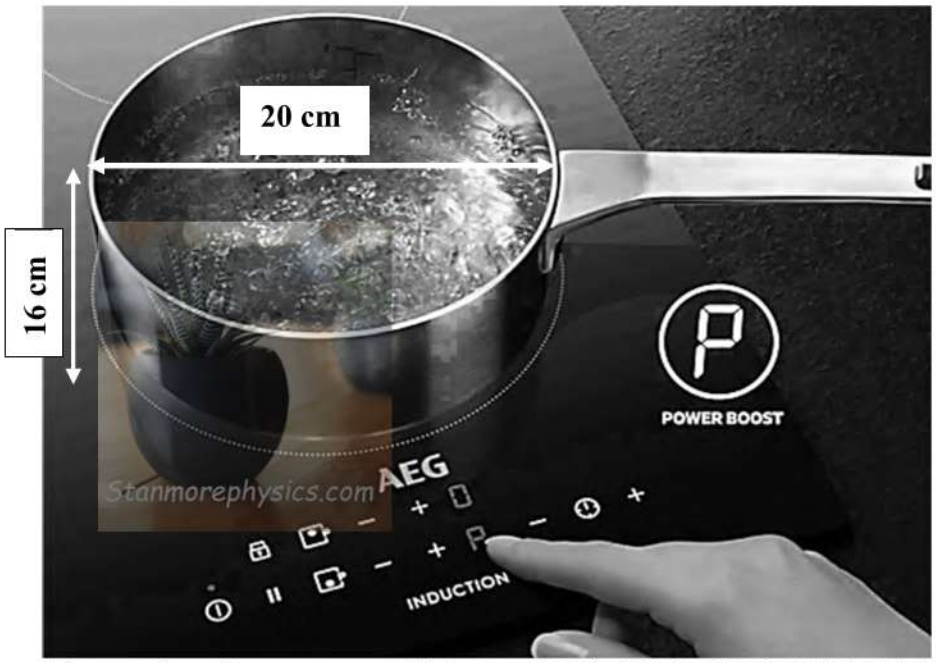
Use the information given above to answer the following questions.

5.1.1 Calculate the area of the stove (in m^2).

You may use the following formula:

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

5.1.2 To test her new stove, Mikayla prepared her favourite meal in a pot, as shown below.



[Source: *https://www.aeg.co.uk/kitchen/cooking/hobs/induction-hob/ilb64334cb/*]

Calculate the amount of water, in litres, inside the pot if the pot is ¾ full.

You may use the following formula:

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

NOTE: 1 000 cm^3 = 1 litre (5)

5.2 Mikayla drove back to the store, in Boksburg, where she bought the new stove, to fetch the receipt she had forgotten. She travelled South on Mbeki Street from her home to reach Boksburg town.

5.2.1 What type of instrument would Mikayla use to determine direction? (2)

5.2.2 The population of Boksburg in 2015 was 260 321 and grew to 280 000 in 2022. Calculate the percentage increase in the population to the nearest whole number.

You may use the following formula:

$$\textbf{Percentage increase} = \frac{\textbf{New value} - \textbf{Old value}}{\textbf{Old value}} \times 100$$

(4)

[14]

TOTAL: 100

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MARKING GUIDELINES

MATHEMATICAL LITERACY
(PAPER 2)

CODES	EXPLANATION
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification/Reason/Explain
S	Simplification
RT/RD/RG	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
NPR	No penalty for rounding-off OR omitting units
AO	Answer Only

KEY TO TOPIC SYMBOL:

M = Measurement; MP = Maps, Plans and other representations;
P = Probability

7 pages

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however it stops at the second calculation error.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalise for every extra incorrect item presented.

QUESTION 1: [20 Marks]		**AO**	
Q	**Solution**	**Explanation**	**T&L**
1.1.1	Ground floor ✓A shop number one ✓A	1A ground floor 1A shop number (2)	MP L1
1.1.2	Northeast or NE ✓✓A	2A correct answer (2)	MP L1
1.1.3	Two ✓✓A	2 A answer (2)	MP L1
1.1.4	CNA ✓✓A	2A correct answer (2)	MP L1
1.2.1	C ✓✓A OR $\pi \times r^2$	2A correct formula (2)	M L1
1.2.2	120 : 74 ✓A 60 : 37 ✓A	1A ratio in the correct order 1A answer (2)	M L1
1.2.3	120 cm ÷ 2 ✓M = 60 cm ✓A	1M dividing by 2 1A answer (2)	M L1
1.2.4	74 × 10 ✓M = 740 mm ✓A	1M multiplying by 10 1A answer **NPU** (If wrong unit is used, penalise 1 mark) (2)	M L1
1.2.5(a)	D ✓✓ A	2A answer (2)	M L1
1.2.5(b)	B ✓✓ A	2A answer (2)	M

			L1

QUESTION 2: [20 MARKS]			
Q	**Solution**	**Explanation**	**T&L**
2.1.	$260 + 107$ ✓M = 367 km ✓CA **Accept** : 638 km (If learners did not use the N1)	1M addition of correct values 1CA answer (2)	MP L2
2.2	Limpopo province ✓✓A	2A answer (2)	MP L2
2.3	Beitbridge ✓✓A	2A answer (2)	MP L2
2.4	$speed = \frac{68km \checkmark RT}{0,8}$ ✓ SF = 85 km/h ✓CA	1 RT correct distance 1 SF correct substitution 1CA answer NPR (3)	MP L3
2.5	Travel westwards ✓ A Turn right onto R521 and drive for 23km ✓ A Turn right onto R572and drive for 23km ✓ A The entrance will be on the right/left ✓ A **OR** Travel northeast ✓✓ A Turn left unto R572 for 68km ✓ A The entrance will be on the left/right ✓ A	1A west 1A right to R521 1A right to R572 1A entrance on the right/left **OR** 1A north 1A east 1A left 1A left/right (4)	MP L3
2.6	Measured distance = 48 mm✓ A 48 mm : 92 km ✓A 48 : 92 000 000 ✓C 1 : 1 916 666,667 ✓CA 1 : 1 900 000 ✓R **OR** Measured distance = 4,8 cm✓ A 4,8 cm : 92 km ✓A 4,8 : 9 200 000 ✓C 1 : 1 916 666 ,667 ✓CA 1 : 1 900 000 ✓R	1A measured length 1A correct ratio format 1C conversion 1CA answer 1R correct rounding (Range:45mm to 51mm/ 4,5cm to 5,1 cm) (5) 1A measured length 1A correct ratio format 1C conversion 1CA answer 1R correct rounding	MP L3

2.7	• When a map/plan is resized, the number scale becomes inaccurate. ✓✓O **OR** • Calculations are required to determine the actual lengths and distances. ✓✓O (Accept any reasonable explanation.)	2O explanation (2)	MP L4

QUESTION 3: [23 Marks]

Q	Solution	Explanation	T&L
3.1.1	60 × 2,54 ✓ C = 152,4 cm ✓ A	1C conversion 1A answer **AO** (2)	M L2
3.1.2	30 × 2,54 = 76,2 cm ✓ A $\frac{76,2}{100}$ ✓ C = 0,762 m ✓ CA ∴ the desk meets the requirements ✓ O **OR** $1 \div 2,54 = 0,3937\ inches$✓ A $30 \div 0,3937 = \frac{76,2cm}{100}$ ✓C = 0,762 m✓ CA ∴ the desk meets the requirements ✓ O	1A answer 1C conversion from cm to m 1CA answer 1O opinion 1A answer 1C conversion from cm to m 1CA answer 1O opinion (4)	M L4
3.1.3	Length of 1 plank 152,4cm ✓ MCA 2 m – (60 × 2,54) ✓C 200 cm – 152,4 cm ✓ M = 47,6 cm ✓ CA Total waste = 47,6 × 6 ✓ MCA = 285,6 cm ✓ CA	**CA from 3.1.1** 1MCA subtracting length from the 2m 1C converting length of 1 plank 1M subtracting values 1CA answer 1 MCA for multiplying by 6 1CA answer	M L3

	OR $152{,}4cm$ *to* m: $152{,}4$✓ MCA÷ 100 $= 1{,}524m$ ✓C $2m - 1{,}524m$ ✓ M $= 0{,}476m$✓ CA $= 0{,}476m \times 6$✓ MCA $= 2{,}856m$✓ CA **OR** $6 \times 152{,}4cm$✓MCA $= \frac{914{,}4cm}{100}$✓C $= 9{,}144m$✓CA 6×2✓M $= 12m$ $12 - 9{,}144$✓MCA $= 2{,}856m$✓CA	1MCA for using 152,4cm 1C for Conversion 1M subtracting from the length 1CA Answer 1MCA multiplying by 6 1CA answer 1MCA for using 152,4cm 1C for Conversion 1CA Answer 1M multiplying by 6 1MCA subtracting from the length 1CA answer (6)	

3.2.1	<table><tr><th>Description</th><th>Quantity to be purchased</th></tr><tr><td>Legs</td><td>4 x 28,5” 28,5 × 2,54 × 4 ✓ M = 289,56 cm ✓CA</td></tr><tr><td>Top supports</td><td>2 x 17” 17 × 2,54 × 2 = 86,36cm ✓ CA</td></tr><tr><td>Table top</td><td>6 x 60” 60 × 2,54 × 6 914,4 cm ✓ CA</td></tr><tr><td>Total length</td><td>= 289,56 + 86,36 + 914,4 ✓ MCA = 1 290,32 cm ✓ CA 1 290,32 ÷ 100 ✓ C = 12,9032 m ✓ CA</td></tr><tr><td colspan="2">∴ the claim is correct ✓ J</td></tr></table>	1M multiplication of values 1CA answer 1CA length of top supports 1CA length of tabletop 1MCA adding values 1CA answer in cm 1C converting to m 1CA answer in m 1J justification (9)	M L4
3.2.2	Any one of the following: ✓✓ A Hammer; Screwdriver; Wrench; Clamps Accept any other tools mentioned.	2A answer (2)	M L2

QUESTION 4: [23 MARKS]			
Q	**Solution**	**Explanation**	**T&L**
4.1.1	Total length $= 2 \times (12\text{ cm} + 5\text{ cm})$ ✓SF $= 34$ cm ✓CA	1SF correct substitution 1CA answer **AO** (2)	M L2
4.1.2	1 : 90 One unit on the map, represents ninety units in reality. ✓✓A	2A explanation (2)	MP L1
4.1.3	$12cm \times 90$ ✓$MA = 1080cm$ ✓A $= \frac{1080cm}{100}$ ✓C $= 10{,}80m$ ✓CA	1MA for multiplying by scale factor 1A answer 1C conversion 1CA answer (4)	MP L3

4.2.1	6 outcomes ✓✓A	2A correct answer (2)	P L2
4.2.2	$\frac{3\checkmark A}{6\checkmark A} \times 100 = 50\% \checkmark CA$	1A numerator 1A denominator 1CA answer (3) **AO**	P L2
4.3.1	$48 \div 12 = 4 \checkmark M$ $4 \times 1\frac{1}{2} \checkmark MCA = 6\ cups \checkmark CA$	1M for dividing the correct values 1MCA for multiplication 1CA answer (3)	M L3
4.3.2	$210 \checkmark SF = s^2$ $\sqrt{210} \checkmark S = \sqrt{s^2}$ 14,49 mm ✓A	1SF correct substitution of area 1S simplifying for $\sqrt{210}$ 1A correct answer **(Accept: 14,491 mm)** **AO** (3)	M L3
4.3.3	$14:24 + 00:10 \checkmark M + 00:30 \checkmark RT$ $= 15:04 \checkmark CA$ She will be on time. ✓O **OR** 15:04 ✓RT - 14:24 ✓M = 0:40 ✓CA She will be on time because the recipe takes 40 min. ✓O OR (No, the party starts exactly 15:04, she will not be done before the time)	1RT for 10 min and 30 min 1M adding the times 1CA answer 1O opinion 1RT for 15:04 and 14:24 1M for subtracting 14:24 1CA answer 1O opinion **First three marks} AO** **Opinion mark} 1 mark** (4)	M L4

QUESTION 5: [14 Marks]			
Q	**Solution**	**Explanation**	**T&L**
5.1.1	Area of a rectangle = length x width = 59 cm x 52 cm ✓ SF $=\frac{3\,068}{100^2}$ ✓ C = 0,3068 m^2 ✓CA **OR** Area of rectangle = length x width ✓ SF ✓C = (59 ÷ 100) x (52 ÷ 100) = 0,59 x 0,52 = 0,3068 m^2 ✓CA	1SF correct substitution into formula 1C converting to m^2 1CA answer 1SF correct substitution into formula 1C converting to m^2 1CA answer **NPR** (3)	M L2
5.1.2	Volume of pot = 3,142 × 10 × 10 × 16 ✓ SF = 5 027,2 ÷ 1000 ✓ C = 5,0272 ✓ CA Volume of water in pot = ¾ × 5,0272 ✓ MCA = 3,7704 litres ✓ CA	1SF correct substitution into formula 1C converting to litres 1CA answer 1MCA multiplying by ¾ 1CA answer (5)	M L3
5.2.1	Compass ✓✓A **OR** GPS/ Google maps/ Maps/ Atlas/ Garmin/ Waze **(Accept any relevant navigation system)**	2A correct answer (2)	MP L2
5.2.2	Percentage increase $=\frac{280\,000-260\,321}{260\,321}\times 100$ ✓ SF $=\frac{19\,679}{260\,321}\times 100$✓S = 7,559…%✓CA ≈ 8%✓R	1SF substituting the values correctly 1S simplifying 1CA answer 1R correct rounding (4)	MP L3