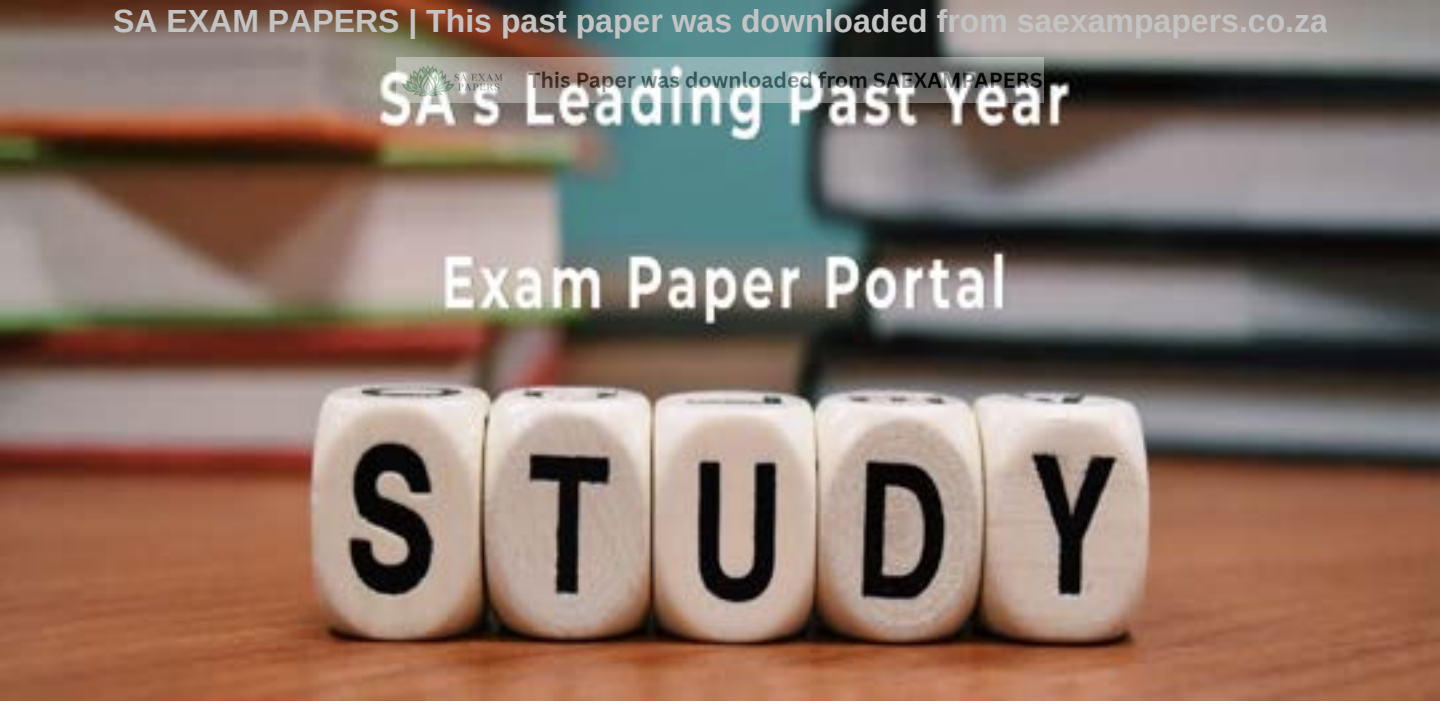


Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2025

MATHEMATICAL LITERACY P2

MARKS: 150

TIME: 3 hours

MLITE2

This question paper consists of 14 pages and an addendum with 2 annexures.

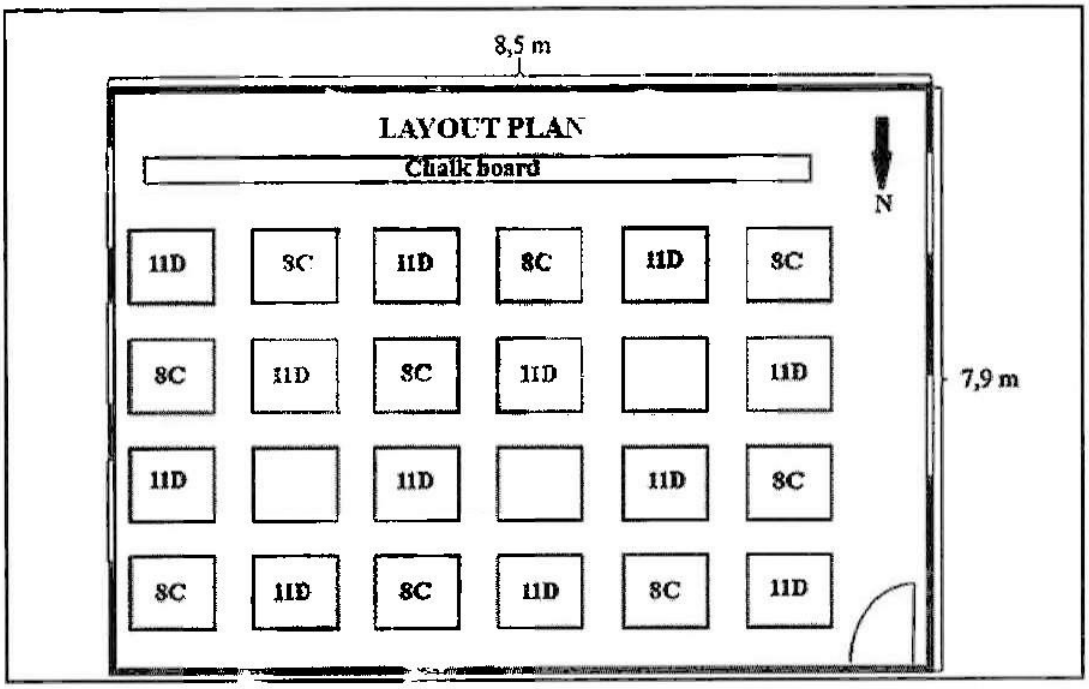
INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:
   - ANNEXURE A for QUESTION 2.2
   - ANNEXURE B for QUESTION 5.1
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 Study the layout plan of a classroom at Rosemary High School below that is used for examination purposes.



Use the information above to answer the questions that follow.

1.1.1 Determine the number of learners that will be writing the examination in this classroom. (2)

1.1.2 Write the number of Grade 8 learners to the number of Grade 11 learners as a ratio in its simplified form. (2)

1.1.3 Determine the number of windows in this classroom. (2)

1.1.4 Is the door opening clockwise or anticlockwise? (2)

1.1.5 Convert the longest side of the classroom wall to millimetres. (2)

1.2 Rosemary High school has a tuckshop that offers a variety of coffees, juices, sandwiches and muffins in different sizes.

The different coffee cup sizes used for the coffees are shown below.

Use the information above to answer the questions that follow.

1.2.1 A 250 ml cup of coffee costs R15,00. Determine the cost of ONE millilitre of coffee. (2)

1.2.2 Convert the size of the largest cup to litres. (2)

1.2.3 The tuckshop assistant fills the cups to 95% capacity to avoid spillage.

Define the term *capacity* in the given context. (2)

1.2.4 Hence, calculate how much coffee the 500 ml cup would hold at a capacity of 95%. (2)

1.3 The Principal of Rosemary High school has decided to renovate the staff bathrooms and install new circular mirrors together with a few other renovations.

The mirrors that will be bordered with black rubber band to make the edges safer, is shown in the diagram below.

Scale 1 : 5

1.3.1 Explain the meaning of the scale in this context. (2)

1.3.2 Determine the diameter of the mirror to the nearest centimetre. (3)

1.3.3 Calculate the length of the black rubber band that is used to make the mirror safer.

You may use the following formula:

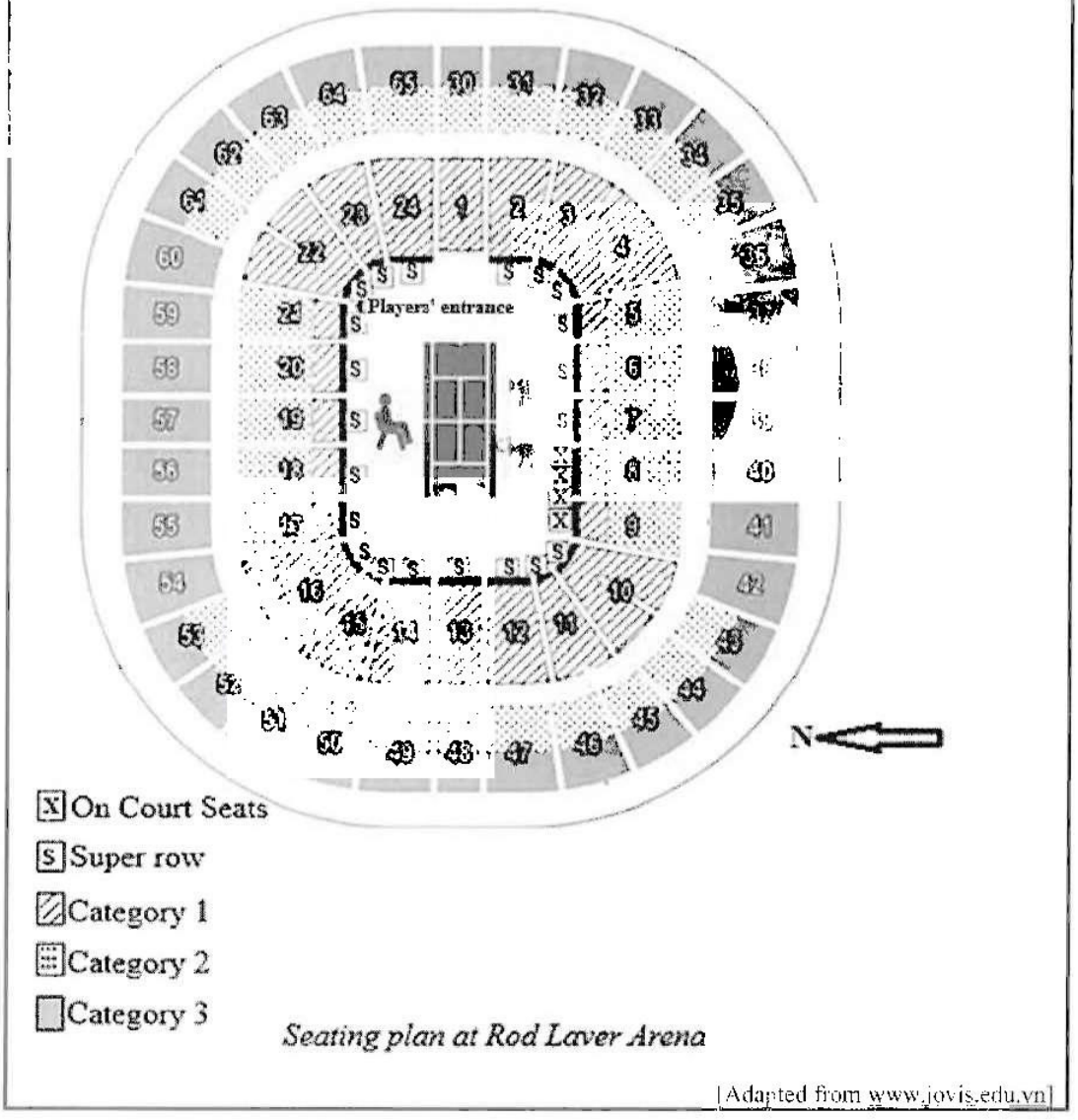
Circumference of a circle = $2 \times \pi \times$ radius, where $\pi = 3{,}142$ (2)

1.3.4 Hence, define the term *circumference* in this context. (2)

[27]

QUESTION 2

2.1 The seating arrangements at Rod Laver Arena, a tennis stadium in Australia is shown below. Use the seating arrangements to answer the questions that follow.



Seating plan at Rod Laver Arena

[Adapted from www.jovis.edu.vn]

2.1.1 Give the general direction of the cameras from the players' entrance. (2)

2.1.2 Write the number of the on court seats to the number of the super row seats as a decimal fraction and round your final answer off to ONE decimal place. (3)

2.1.3 Give a clear set of directions to a tennis player that enters at the players' entrance and wants to go to seat eighteen without interfering with the cameras. (3)

2.1.4 Explain why do you think that the front row seats are called the '*super row*'. (2)

2.2 The road map of Melbourne and surrounding areas are shown in ANNEXURE A. Use ANNEXURE A to answer the following questions.

2.2.1 List TWO educational institutions that can be found on this part of the map. (2)

2.2.2 The map distance from Carl's residence to the National Gallery of Victoria is 18,3 cm. Use the scale on the map to determine the actual distance in kilometres. (4)

2.2.3 Identify the sport and entertainment area north from Carl's residence. (2)

2.2.4 The distance from Carl's residence to the Rod Laver Arena is 2,7 km. If Carl travels by car at an average speed of 20 km/h, the distance is covered.

Carl claims that his walking time to the Rod Laver Arena is 33 minutes, but if he travels by car, he will reach the arena in a quarter of his walking time.

Verify, with the necessary calculations, whether his claim is VALID.

You may use the following formula: $\textbf{Time} = \frac{\textbf{Distance}}{\textbf{Speed}}$ (6)

2.2.5 Give ONE reason why Carl would prefer to walk to Rod Laver Arena instead of driving. (2)

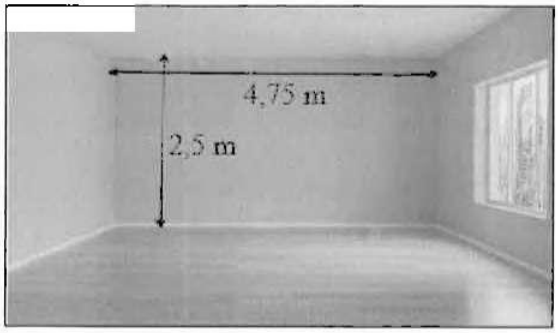
2.2.6 Determine the probability of randomly selecting a bus station on the eastern half of this map. (2)

[28]

QUESTION 3

3.1 You decided to start a small printing and advertising business to generate funds that will assist you with finances for your tertiary education. Your parents gave permission for you to change the spare bedroom into an office space to do your business.

The dimensions of the wall where you wish to place your desk against, is shown in the diagram below.



Dimensions of the wall:

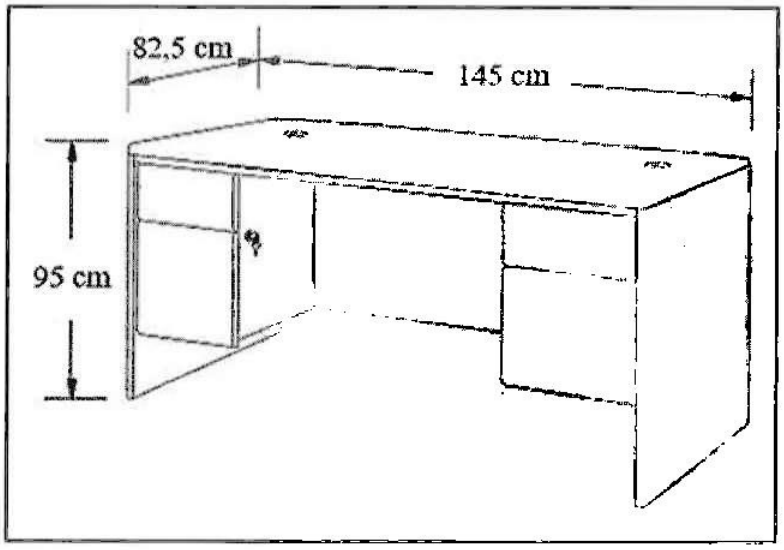
Length = 4,75 m
Height = 2,5 m

3.1.1 One litre of paint costs R89,95 and covers 5,9 m^2. Determine how much it will cost you to paint the wall with a double coat of paint.

You may use the following formula:

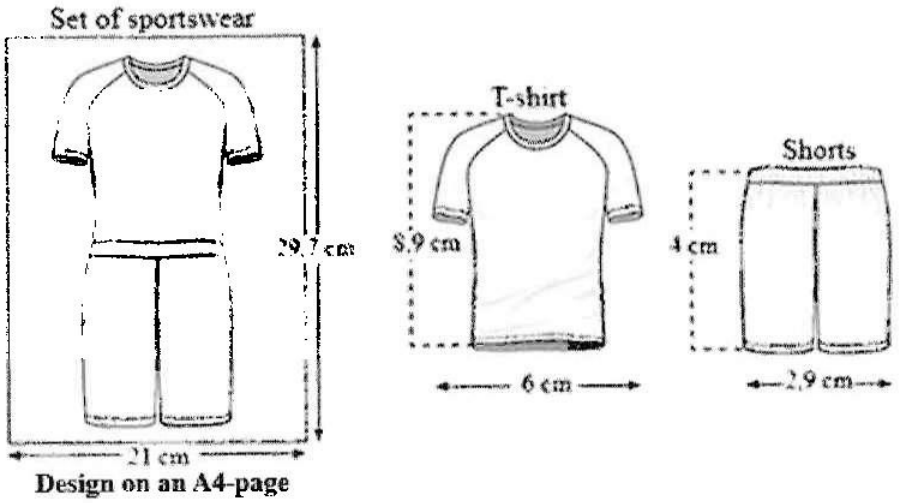
Area of a rectangle = length × height (7)

3.1.2 Below are the dimensions of a desk that you plan to place in your office.



Determine the maximum number of desks you can fit next to each other across the length of the wall. (4)

3.2 Your school's sport committee asked you to print flyers (on an A4-page) of the design of a set of sportswear. The design plan of the set of sportswear is shown in the diagram below.



3.2.1 Determine the width of the A4-page in metres (m). (2)

3.2.2 When the sportswear is worn, 6,95% of the t-shirt is tucked into the shorts as illustrated on the A4-page above.

Calculate the length of the t-shirt that is visible. (4)

3.2.3 The head of the sports committee claims that the total visible length (on the A4-page) of the set of sportswear when it is worn with the t-shirt tucked in, is 13 cm.

Verify, with the necessary calculations, whether the claim is VALID. (3)

3.3 The cricket coach was recruiting girls to join the cricket team. All athletes who showed interest had to provide their mass, height and age to join the cricket team.

Below is a table containing the mass, height and age of three girls as well as a Body-mass Index (BMI) weight status table.

TABLE 1: Mass, height and age of THREE girls interested in the cricket team

NAME	MASS (kg)	HEIGHT (m)	AGE (years)
Samantha	67	1,59 m	16
Thandeka	82,5	1,72 m	19
Mariaan	50	1,41 m	17

TABLE 2: BMI – WEIGHT STATUS TABLE

BODY MASS INDEX (BMI)	WEIGHT STATUS
Below 18,5	Underweight
18,5 to 24,9	Healthy
25 to 29,9	Overweight
30,0 +	Obesity
40,0 +	Severe Obesity

[Source: https://www.google.co.za/ body-mass-index-explained]

Use the information in the tables above to answer the following questions.

3.3.1 Identify the weight status of a member on the cricket team with a BMI of more than 30 kg/m^2 and less than 40 kg/m^2. (2)

3.3.2 Thandeka's mother advised that she loses some weight if she wants to play sport.

Verify, with the necessary calculations, whether Thandeka's mother was correct about her being overweight and not in good shape to play sport. Give your answer to THREE decimal places.

You may use the following formula:

$$\textbf{BMI} = \frac{\textbf{Mass (kg)}}{\textbf{Height (m)}^2}$$ (4)

3.3.3 Provide TWO ways that can assist Thandeka to lose weight and live healthier. (4)
[30]

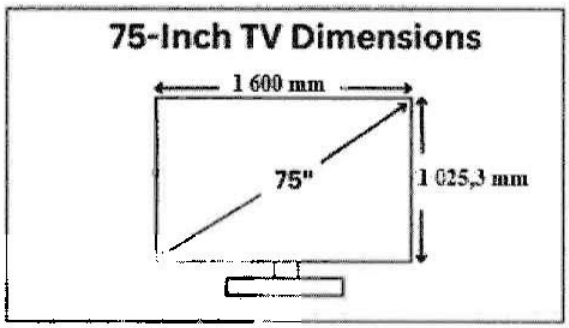
QUESTION 4

4.1 Plasma screen televisions (TV's) are generally imported from China. The TV's are always transported in a box, but before TV's are boxed and shipped, the manufacturers wrap the TV's in protective material.

The packaging boxes of the plasma TV's have dimensions of 1 605 mm × 100 mm × 1 030 mm.

The dimensions of the shipping containers' are 6,5 m × 2,5 m × 2,9 m.

A 75-inch plasma TV with dimensions are shown in the diagram below.



[Source: www.googleimages.com]

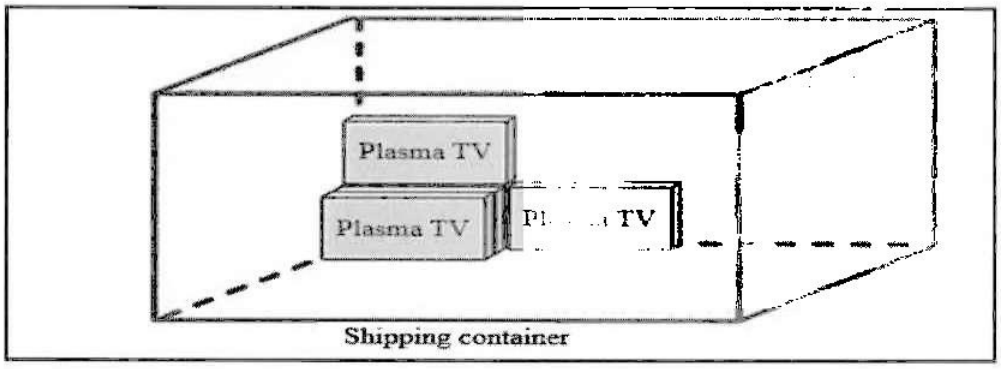
4.1.1 Calculate the area **of one** of the plasma TV's in cm^2.

You may use the **following** formula:

Area of a rectangle = length × width (3)

4.1.2 Determine the scale of the drawing if the measured length of the plasma TV is 30 mm. Give your answer in the form of 1: … (2)

4.1.3 Determine the number of boxed plasma TV's that can be loaded onto a shipping container if it is packed according to the example below.



(6)

4.1.4 For quality control purposes, containers are randomly checked for defective TV's. Based on your answer in QUESTION 4.1.3, if one in every 50 TV's is defective, determine the probability, as a percentage, of picking a defective TV in this container. (3)

4.1.5 If one plasma TV costs R65 750, determine the cost of the total number of plasma TV's in this container. (2)

4.1.6 Provide ONE reason why manufacturers wrap the plasma TV's in protective material. (2)

4.2 Shane and Mike respectively used a bus and a minibus (taxi) to transport people from Bloemfontein to Durban during the 2024 festive season. The simplified ratio of the diameter of the tyre of the minibus to the diameter of the tyre of the bus is 5 : 11, as shown in the diagram below.

Diameter of bus tyre = _____

Diameter of minibus (taxi) tyre = 55 cm

4.2.1 Calculate the diameter of the tyre of the bus. (2)

4.2.2 Calculate the volume (in cm^3) of the tyre of the minibus (taxi) if the height of the tyre 70 cm.

You may use the following formula:

Volume of a cylinder = $\pi \times$ **radius**$^2 \times$ **height**, where π = **3,142** (3)

4.2.3 If the minibus (taxi) is a 15-seater and the bus a 60-seater, determine the following:

(a) How many loads of a minibus (taxi) can fill the bus? (2)

(b) The total amount the bus company would make for a return trip between Bloemfontein and Durban with a full load, if the cost of a single trip is R417 per person. (3)

(c) Why is it important to take vehicles for maintenance and repairs after a specified number of kilometres are travelled? Provide ONE reason. (2)

[30]

QUESTION 5

5.1 The Rosseau family would like to install a new swimming pool before the hot summers. ANNEXURE B shows the swimming pool that they want to install.

The area of the pool is 65 m^2.

PLEASE NOTE:
1 m^3 = 1 000 litre
1 gallon = 3,785 litres

5.1.1 Identify the formula that is used to calculate the total surface area (TSA) of the swimming pool.

(a) TSA = 2 + π + radius + height

(b) TSA = π × $radius^2$ × height

(c) TSA = π × $radius^2$ + (2 × π × radius × height) (2)

5.1.2 Calculate the radius of the swimming pool.

You may use the following formula:

Area of a cylinder = π × $radius^2$, where **π = 3,142** (4)

5.1.3 Calculate the volume of water, in gallons, that will be needed to fill the swimming pool to its maximum capacity.

You may use the following formula:

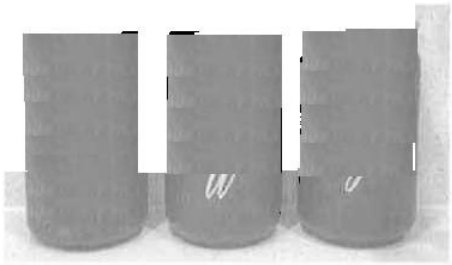
Volume of a cylinder = π × $radius^2$ × depth, where **π = 3,142** (5)

5.1.4 Mr Rosseau claims that it will take more than 25 hours to fill the pool if the water flows in at 30 000 gallons per 40 hours.

Verify, with the necessary calculations, whether his claim is VALID. (3)

5.2 Mrs Rosseau decided to buy a new canister set to brighten up her kitchen. She saw two different sets of canisters as shown in the table below.

TABLE 3: DIFFERENT SHAPES OF CANISTER SETS

CYLINDRICAL CANISTERS	RECTANGULAR CANISTERS
	
 **Lid goes in 1,5 cm** **Dimensions of canister:** **Diameter = 14 cm** **Height = 17 cm**	 **Lid goes in 1,5 cm** **Dimensions of canister:** **Length = 15 cm** **Width = 13,5 cm** **Height = 17 cm**

[Source: https://www.etsy.com]

The following formulae may be used:

Surface area of a cylindrical canister =

$\pi \times \text{radius}^2 + (2 \times \pi \times \text{radius} \times \text{height})$, where **$\pi = 3{,}142$**

Surface area of a rectangular canister =

(length × width) + 2 × (length × height) + 2 × (width × height)

Use the information in TABLE 3 above to answer the questions below.

5.2.1 Determine the height of the sugar in the rectangular canister if the canisters are filled to just below the lid. (2)

5.2.2 Both sets of coffee canisters are made of stainless steel lined with transparent film that is made from assorted plastics.

Calculate the difference in the size of the transparent film that is used to line the cylindrical and the rectangular canisters, respectively. (7)

5.2.3 If the volume of the rectangular canister is 3 442,5 cm^3, determine the number of grams to the nearest 50 g of sugar that can be poured into this canister.

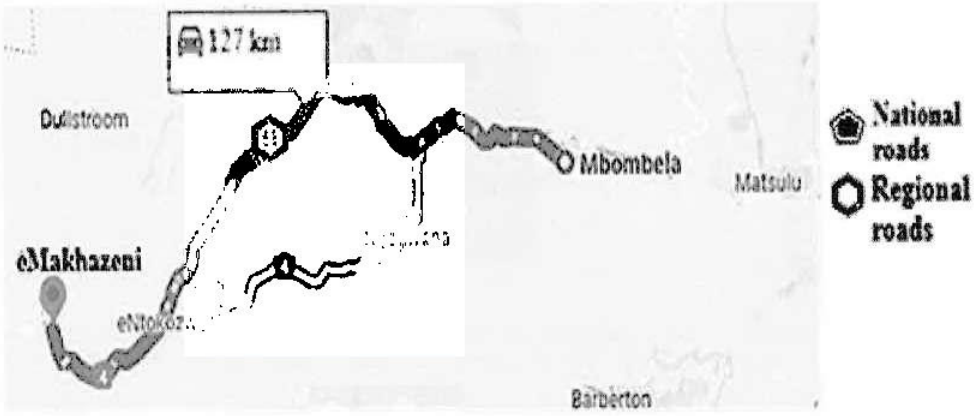
You may use the following formula:

$$\textbf{Density (g/cm}^3\textbf{)} = \frac{\textbf{Mass (g)}}{\textbf{Volume (cm}^3\textbf{)}}$$

NOTE:
Density of the sugar: 1 cm^3 = 0,8521 gram of sugar (3)

5.2.4 Why, in your opinion, does the manufacturers line the canisters with transparent film? Mention ONE reason. (2)

5.3 Mr and Mrs Rosseau live in Mbombela. They had to travel to eMakhazeni for a funeral. An extract of the map below illustrates the travelling distance between Mbombela and eMakhazeni.



[Adapted from www.googleimages.com]

5.3.1 Calculate how long (in hours and minutes) it took Mr and Mrs Rosseau to reach eMakhazeni if they travelled at an average speed of 75 km/h.

You may use the following formula:

$$\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{Time}}$$ (5)

5.3.2 Determine the probability that Mr and Mrs Rosseau will travel on a regional road to get to eMakhazeni. (2)

[35]

TOTAL: 150