KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

PREPARATORY EXAMINATION

SEPTEMBER 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 12 pages and a 15-page SPECIAL ANSWER BOOK.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.

2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.

3. You may use an approved calculator (non-programmable and non-graphical), unlessstated otherwise.

4. Show ALL calculations clearly.

5. Round off ALL final answers appropriately according to the given context, unless stated otherwise.

6. Indicate units of measurement, where applicable.

7. Maps and Diagrams are NOT necessarily drawn to scale unless stated otherwise.

8. Write neatly and legibly.

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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	The ratio that represents the measured distance and the actual distance
B	The aerial view of the arrangement of rooms
C	The amount of space a 3D object occupies
D	The side view of the outside of a building
E	The likelihood of an event taking place
F	A statement about a future event based on historical data
G	Total distance of the outline of a shape.
H	The maximum amount of space available to hold solids, liquids and gases.

Use TABLE 1 above to write down the letter (A – H) of explanation or definition of EACH of the following concepts next to the question numbers (1.1.1 to 1.1.5) in the ANSWER BOOK, e.g. 1.1.5 J.

1.1.1 Volume. (2)

1.1.2 Scale. (2)

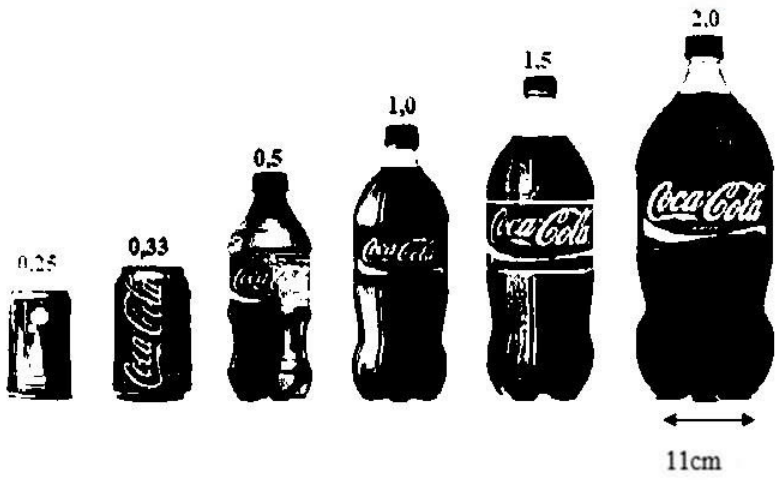
1.1.3 Perimeter. (2)

1.1.4 Floor plan. (2)

1.1.5 Probability. (2)

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1.2 The image below displays various coke bottles and cans, along with the capacity of each container shown in litres



NOTE: 1 cup = 250 mℓ

[Source:www.lovemedia.net]

Use the image and information above to answer the following questions.

1.2.1 Convert 0,33 litres to mℓ. (2)

1.2.2 Determine the number of 250 mℓ cups of Coke contained in a 1.5-litre bottle. (3)

1.2.3 Determine the radius of the 2 litre bottle with a diameter of 11 cm. (2)

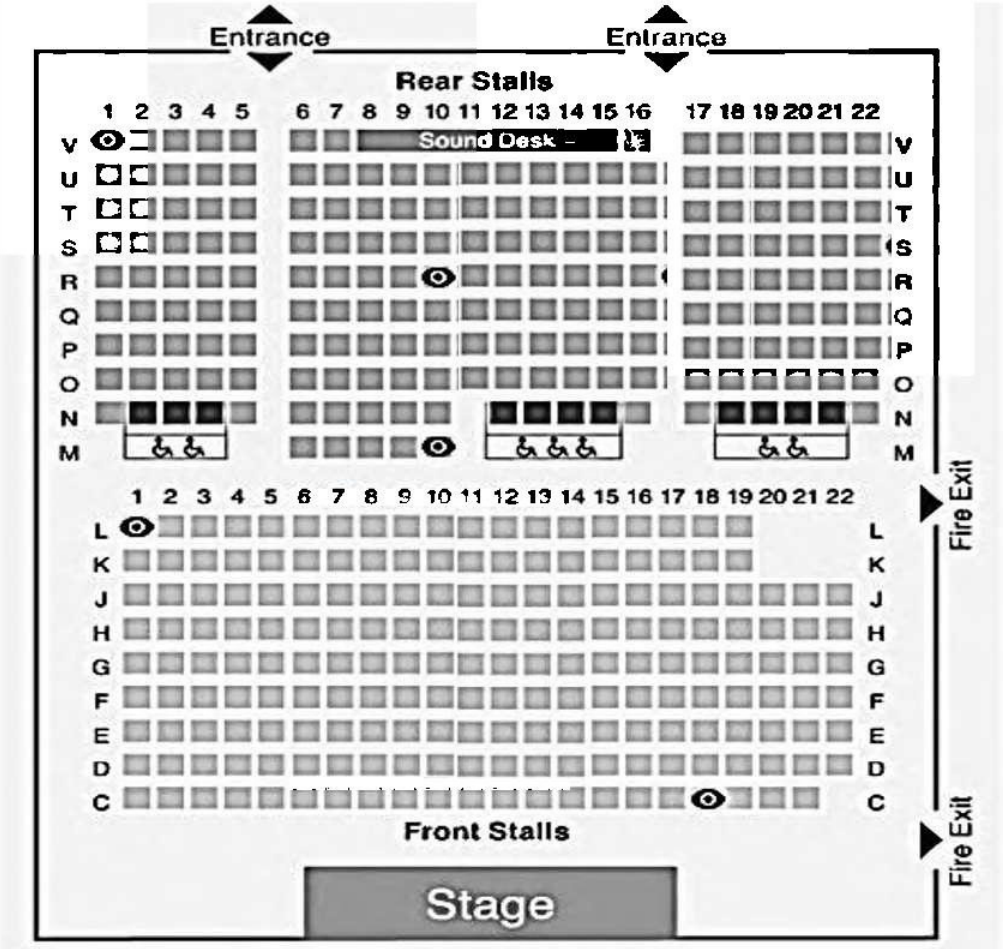
1.2.4 Choose **A, B** or **C**, the most correct formula below that can be used to calculate the volume of coke in a can.

A Volume = $2 \times 3{,}142 \times$ height

B Volume = $3{,}142 \times \text{radius}^2 \times$ height

C Volume = $3{,}142 \times$ height (2)

1.3 A seating plan of the Palace Theatre in Mansfield in London is shown below.



NOTE: The eye symbol shows the view of the stage from the seat when booking tickets for the show online

[Adapted source: /www.mansfield.gov.uk/palacetheatre]

Use the seating plan above to answer the following questions.

1.3.1 Determine the total number of seats available for people with disabilities. (2)

1.3.2 Jabu is seated 6 rows away from the front stalls. The eye symbol is on his left. Identify the row and seat number he is seated at. (2)

1.3.3 Determine the number of seats that can be used for viewing the show in Row V. (2)

1.3.4 The show starts at 19:00, runs for 2 hours, with two 15-minute breaks. Determine the time the show will end. Write the answer in 12-hour time format. (3)

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QUESTION 2

2.1 The Durban International Conference Centre (ICC) and the Durban Exhibition Centre (DEC) host various local and international events. The parking shown on the map is used by both Centres. ANNEXURE A in the ANSWER BOOK shows the map of the ICC and the DEC.

Use ANNEXURE A and the information above to answer the following questions.

2.1.1 State the importance of the key on the map in this context. (2)

2.1.2 Using the landmarks on the map, describe the relative position of the DEC. (2)

2.1.3 Name the main road that gives access to the ICC underground parking. (2)

2.1.4 Identify the compass direction of Sahara Stadium from the ICC. (2)

2.1.5 The total length of the ICC is approximately 300 metres. Determine the scale used on the map. (4)

2.1.6 Determine the probability, as a percentage, that a visitor to the ICC uses the North Plaza Parking. (4)

2.2 The Two Oceans Half marathon in Cape Town starts in Newlands and ends in Rondebosch. ANNEXURE B in the ANSWER BOOK shows a route map and elevation map of the half marathon.

Use ANNEXURE B and the information above to answer the following questions.

2.2.1 Calculate a runner's speed in km per hour if the race must be completed in 3 hours 30 minutes.

You may use the formula.

Distance = speed × time (2)

2.2.2 Determine the altitude of the runner at the finish of the race. (3)

2.2.3 Last year's winner finished in 01:04:00. Determine the winner's average pace in minutes per kilometre. (2)

2.2.4 A runner stated that between the 5km and 15km mark, the altitude increased by 10m per km. Show by calculation if this is correct. (3)

2.2.5 14 934 of the 16 000 runners finished the race in 2024. Predict the number of runners in 2025 that are likely to finish the race if the entries increase to 17500. (4)

2.2.6 Explain the importance of attaching an elevation map to the route map. (3)

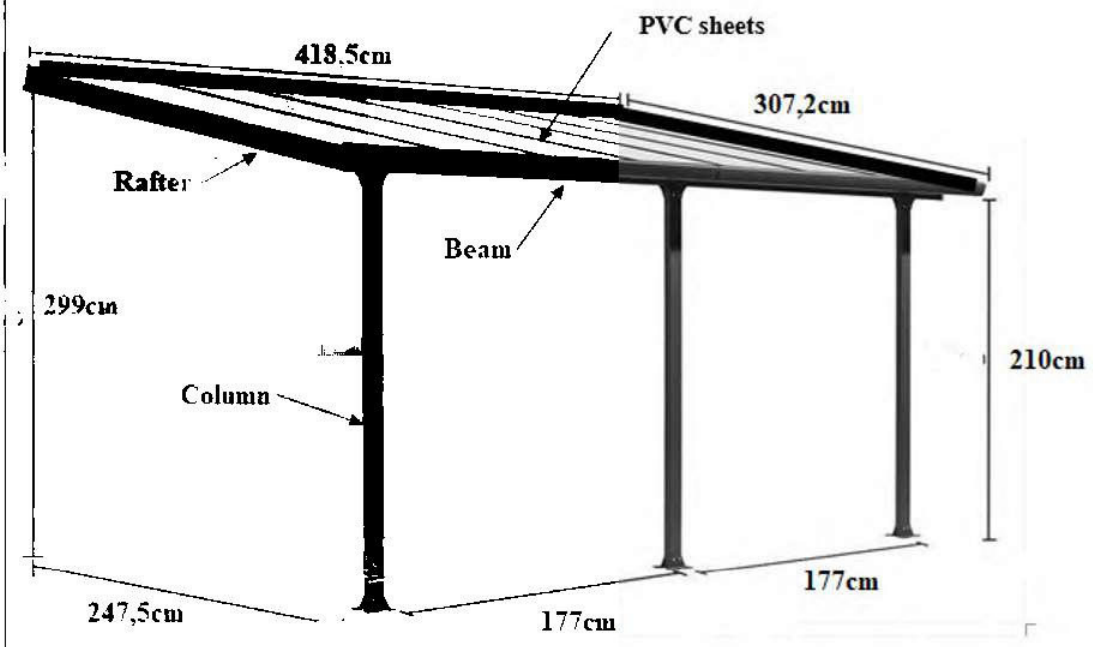
[33]

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QUESTION 3

3.1 A homeowner wants to install a pergola onto their patio. The pergola is made up of steel columns and a frame with rectangular pieces of PVC sheeting on the roof.

DIMENSIONS OF THE PERGOLA IN CM



NOTE: A pergola is an outside structure used to provide shade and shelter.

1 foot = 0,305 metres

[Adapted source:www.pinterest.com]

Use the diagram and the information above to answer the following questions.

3.1.1 Determine the total length of metal in metres required to make the frame of the pergola.

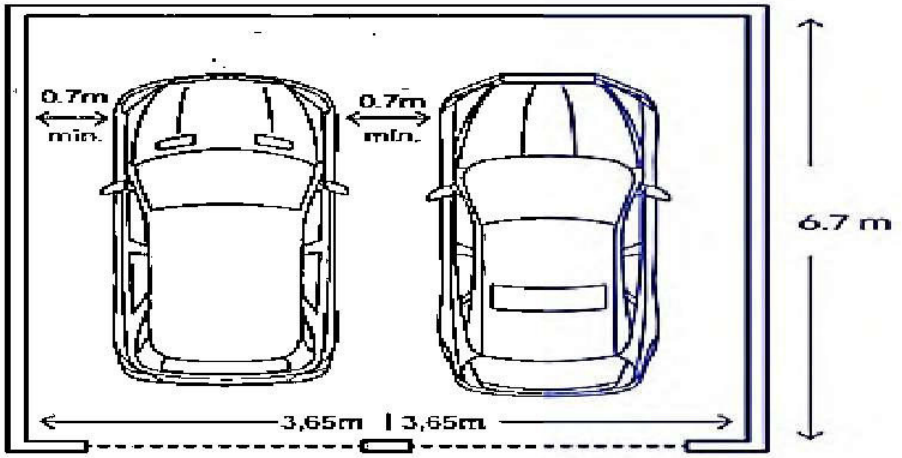
You may use the formula:

Perimeter = 2 (L + B) (5)

3.1.2 The metal piping is sold in lengths of 20 feet. Determine the number of lengths that must be bought. (4)

3.1.3 Calculate the number of PVC sheets required to cover the roof of the pergola, if one sheets measures 60cm by 310cm. The sheets overlap each other by 5cm to prevent water from seeping through. (4)

3.2 The floorplan of a double garage is seen below. The owner of the garage wants to tile the garage. The image below displays the garage's internal dimensions, without including the thickness of the walls. The minimum clearance between the cars and the side walls, as well as the space between the two parked cars, is 0.7 metres.



[Adapted source:www.pinterest.com]

Use the image and the information above to answer the questions that follow.

3.2.1 Determine the width of a car in the garage. Assume the width is the same for both cars. (5)

3.2.2 Calculate the area of the double garage.

You may use the formula:

Area = length × breadth (3)

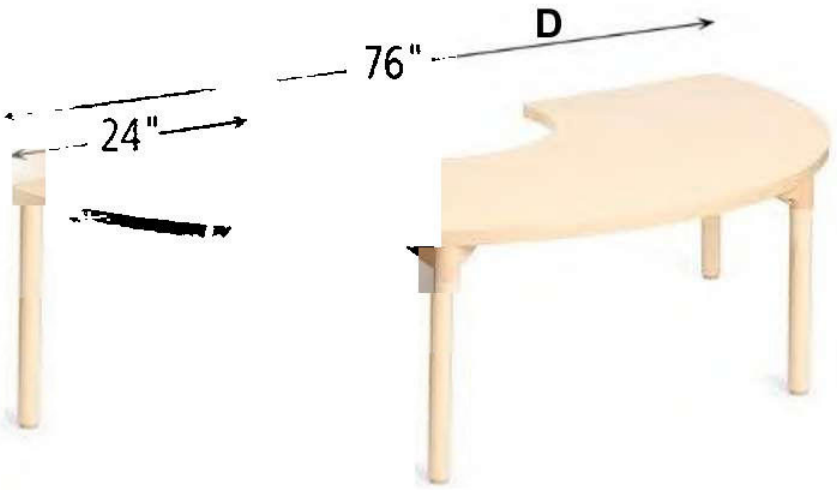
3.2.3 The garage will be tiled using a 50 cm by 50cm tile. Determine the number of boxes of tiles that must be bought if there are 8 tiles in a box. (6)

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QUESTION 4

4.1 The half circle table below is used in a classroom. The teacher sits in the centre and the children sit around the table.

DIMENSIONS OF HALF CIRCLE CLASSROOM TABLE IN INCHES



NOTE : 1 inch = 2,54 cm

[Adapted source www.pinterest. com]

Use the image and the information above to answer the following questions.

4.1.1 Determine the perimeter of the tabletop in inches.

You may use the formula:

Circumference of the table = [(2 × 3,142 × R) + (2 × 3,142 × r)] ÷ 2 + [D – d] (6)

4.1.2 The teacher stated that the area of the table was 1,5m^2.

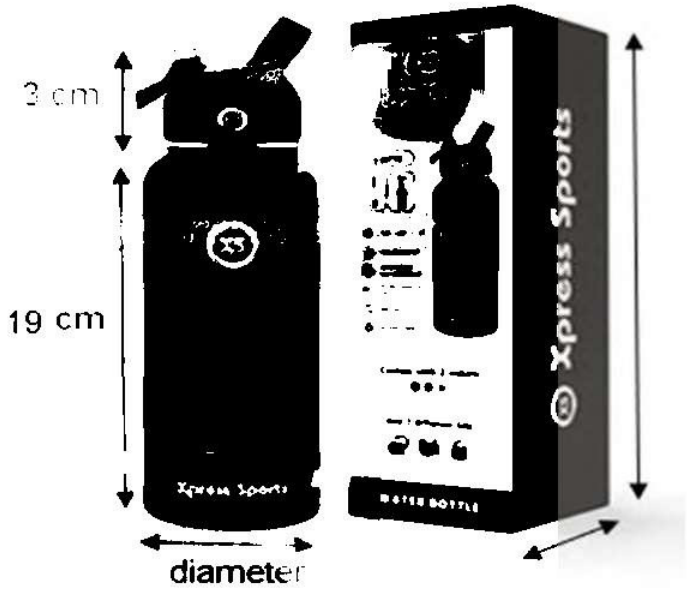
Calculate the area of the table in m^2 shown above.

Verify his **CLAIM** by showing all calculations.

You may use the formula:

Area of a circle = 3,142 × r^2 (8)

4.2 The image below shows a 32 oz water bottle alongside the box it is sold in. The bottle is filled with water only up to the neck and not all the way to the top.



NOTE: 1 ounce = 0,03 litres
$1000cm^3 = 1$ litre

[Adapted source www.behance.net]

Use the image and information above to answer the following questions.

4.2.1 Calculate the diameter of the water bottle in cm.

You may use the formula:

Volume = 3,142 × r^2 × height (8)

4.2.2 Determine the dimensions of the box if the width of the box is 2cm more than the diameter of the bottle and the height of the box is 2cm more the total height of the bottle. (4)

4.2.3 Determine the surface area of the box in m^2.

You may use the formula:

Surface Area Rectangular Prism = 2(L × W) + 2(W × H) + 2(L × H) (5)

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QUESTION 5

5.1 The Trans African Highway connects Cape Town to Cairo, the capital of Egypt. The highway is 6 335 miles or 10 228 km. ANNEXURE C in the ANSWER BOOK shows the Trans African Highway from Cairo to Cape Town.

Use ANNEXURE C and the information above to answer the following questions.

5.1.1 Determine the conversion factor, rounded to 3 decimal places, of miles to km. (3)

5.1.2 Determine the number of countries one must travel through to reach Cape Town. (2)

5.1.3 Identify the type of scale shown on the map. (2)

5.1.4 Use the scale to calculate the actual distance in km from Cape Town to Cairo. (5)

5.1.5 Explain why the distance calculated in Question 5.1.4 does not match the distance given above in the context. (2)

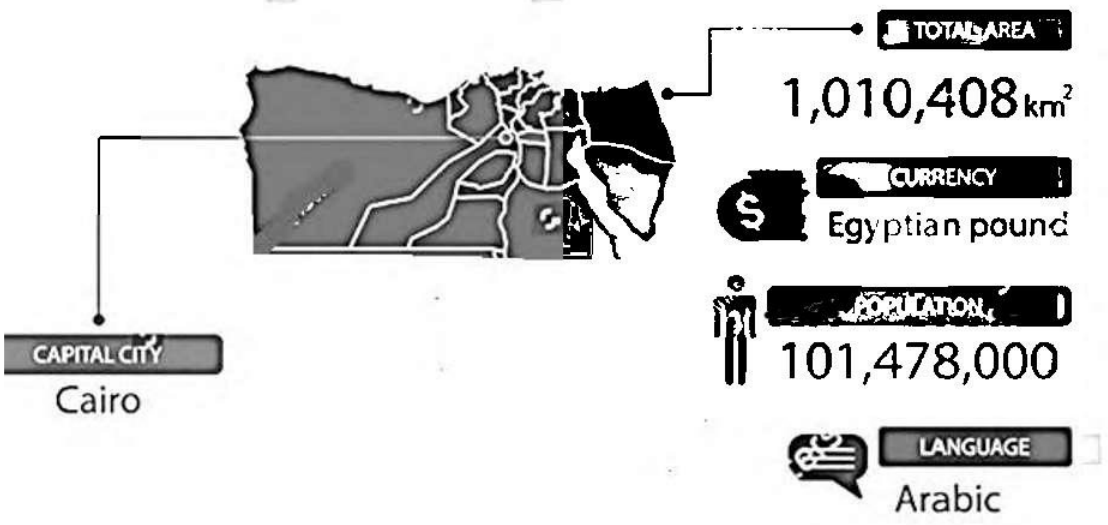
5.1.6 Determine the time taken in days (rounded up to the nearest day) to travel 10 228 km, if the driver travels at an average speed of 90 km/hour for 12 hours in a day. (5)

5.1.7 In Cairo the temperature reaches 98° F in summer. Determine the temperature in °C. Round off your answer to the nearest whole number.

You may use the formula:

$$°C = \frac{5}{9}(°F - 32)$$ (3)

5.2 An infographic showing information about Egypt is given below.



[Source: shutterstock.com]

Use the information above to answer the following questions.

5.2.1 South Africa has an estimated population of approximately 64 million. Calculate the ratio of South Africa's population to Egypt's population, expressed in unit form. (3)

5.2.2 Determine the number of people per km^2 in Egypt. (3)

5.2.3 South Africa has an area of 1 221 037 km^2. It is 1,208 times bigger than Egypt. Verify, showing ALL calculations, if the claim is correct. (3)

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TOTAL MARKS: 150

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