GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2023

10602

MATHEMATICAL LITERACY

(PAPER 2)

TIME: 3 hours

MARKS: 150

9 pages + an addendum of 6 pages

MATHEMATICAL LITERACY: Paper 2

10602E

X05

This question paper consists of 9 pages.
A 6-page addendum is included as an insert in this question paper.

P.T.O.

INSTRUCTIONS AND INFORMATION

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 1.3
   ANNEXURE B for QUESTION 2.1
   ANNEXURE C for QUESTION 4.1
   ANNEXURE D for QUESTION 5.1
   ANNEXURE E for QUESTION 5.2

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 The images below represent measuring instruments used to measure mass and volume. Study the images below and answer the questions that follow.

A	B
	
C	**D**
	

Match the descriptions below with the images above. Write down only the correct letter (A – D).

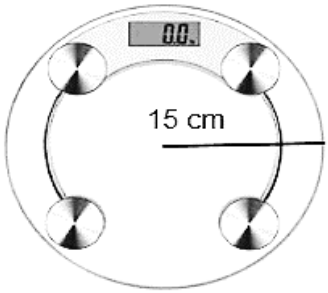
1.1.1 An instrument used to measure the mass of meat in a butchery. (2)

1.1.2 An instrument used to measure the mass of different food types in the kitchen. (2)

1.1.3 An instrument used to measure liquids. (2)

1.1.4 An instrument used to measure the mass/weight of a person. (2)

1.2 Bathroom scales may be used to monitor one's BMI. Lesley bought a bathroom scale with a radius of 15 cm.



1.2.1 Define the term *radius*. (2)

1.2.2 Determine the diameter of the bathroom scale. (2)

1.2.3 Convert 15 cm to metres. (2)

1.2.4 Lesley measured his height and the reading is 66,929 inches.

Determine his height in metres.

Use: **1 m = 39,37 inches** (2)

1.2.5 Choose the letter of the answer that will complete the following statement correctly.

The unit used to measure BMI is …

A kg^2/m
B kg/m^2
C $(kg/m)^2$ (2)

1.3 Lesley downloaded a seating plan of an airplane to check the seat that he reserved for a trip. Use the information in ANNEXURE A to answer the following questions.

1.3.1 Lesley's ticket indicates that he was allocated the 6^{th} seat in the east. Identify the seat. (2)

1.3.2 Use cardinal points to determine where the toilet is situated from Lesley's seat. (2)

1.3.3 How many seats are there on the plane? (2)

1.3.4 Determine the number of single seats from this plan. (2)

1.3.5 What is the general direction of seat 12A from seat 6F? (2)

1.3.6 Express as a ratio, the number of double seats to the total number of seats. (2)
[30]

QUESTION 2

Thandi lives in George, and she travels to Port Elizabeth. She uses the map in ANNEXURE B to plan her local trips. Study the map and answer the questions that follow.

2.1 What type of map does Thandi use in ANNEXURE B? (2)

2.2 Which is the last city that she will pass before she reaches Port Elizabeth when travelling on the N2? (2)

2.3 Name TWO regional roads that she will pass between George and Port Elizabeth, when travelling on the N2. (2)

2.4 What is the distance between George and Port Elizabeth? (2)

2.5 Thandi left George at 05:30 and reached Port Elizabeth at 08:25. Determine the time, in hours, taken to reach Port Elizabeth. (3)

2.6 Hence, determine the average speed at which she travelled in km/h. Round-off your answer to the nearest whole number.

You may use the formula: **Distance = Average speed × Time** (4)

2.7 Thandi claims that the shortest route from Worcester to Mossel Bay is by the national roads instead of the regional roads. Verify, with calculations, whether or not her claim is valid. (10)

2.8 Give ONE advantage of using this type of map. (2)

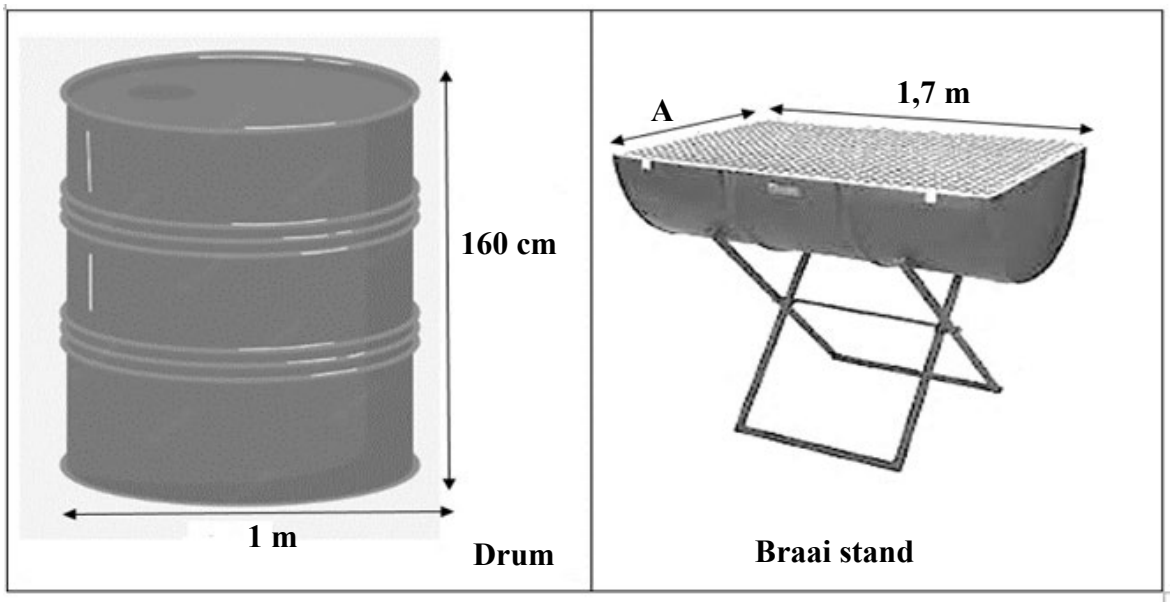
[27]

QUESTION 3

Thato is preparing for a picnic. He cut a drum into two pieces to design a braai stand as shown below.

- The diameter of the drum is 1 m, and the height of the drum is 160 cm.
- The top of the braai stand will be a rectangular grille with the dimensions **A** and 1,7 m.
- The width of the braai stand top is similar to the diameter.
- The braai stand will be half-filled with concrete mix.

Study the diagrams below together with the information above, and answer the questions that follow.



3.1 What is the value of **A**? (2)

3.2 Calculate the area of the top of the braai stand and round-off your answer to the nearest whole number.

You may use the formula: **Area = Length × Breadth** (3)

3.3 Use calculations to show that the length of the top extends by 0,05 m on each side. (7)

3.4 Hence, determine the capacity of the drum.

You may use the formula: **Capacity = $\pi r^2 h$; where π= 3,142** (5)

3.5 Determine the volume of the braai stand that will be half-filled with the concrete mix. (6)

PLEASE DETACH THIS 6-PAGE ADDENDUM.

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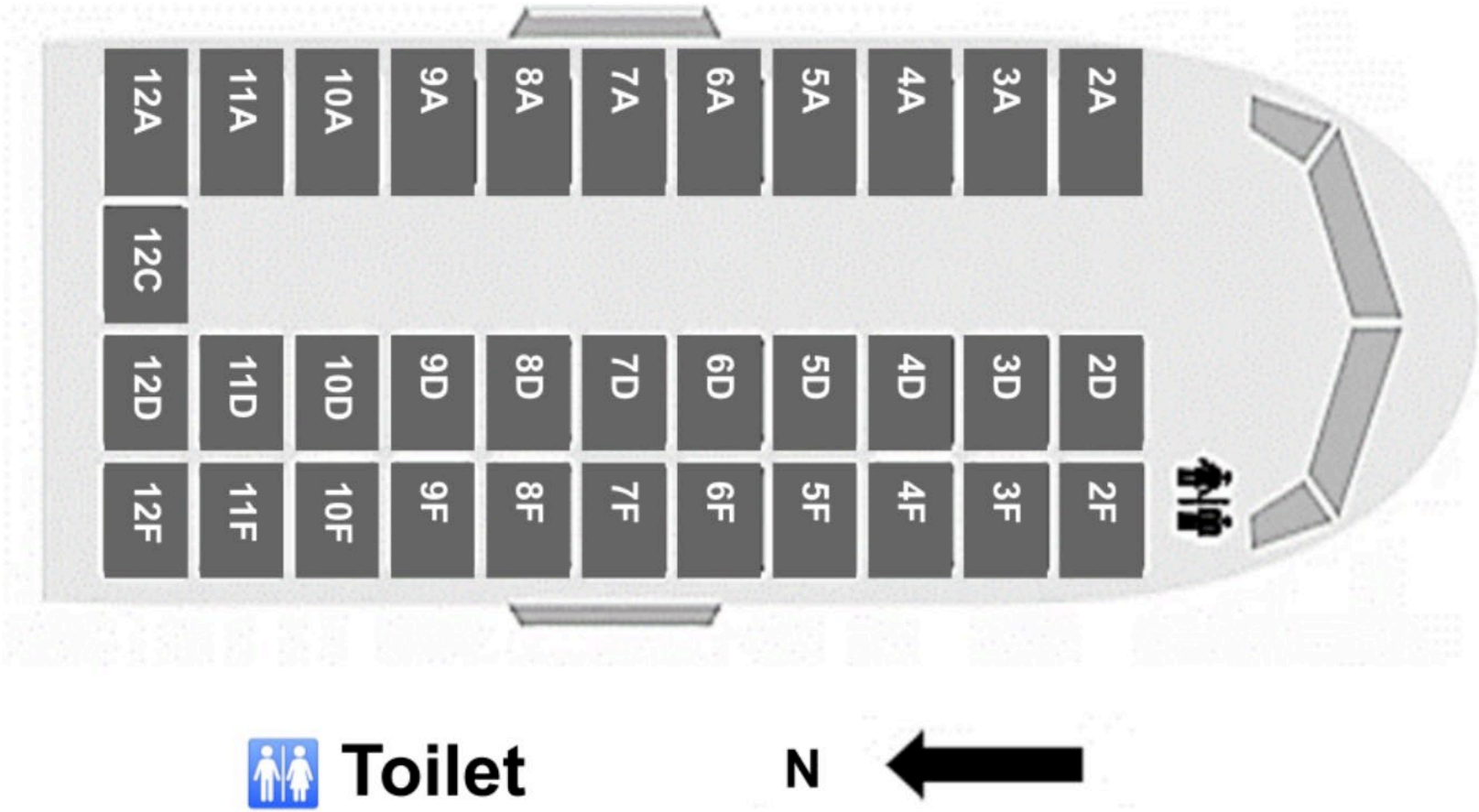
MATHEMATICAL LITERACY
(PAPER 2)

ADDENDUM

6 pages

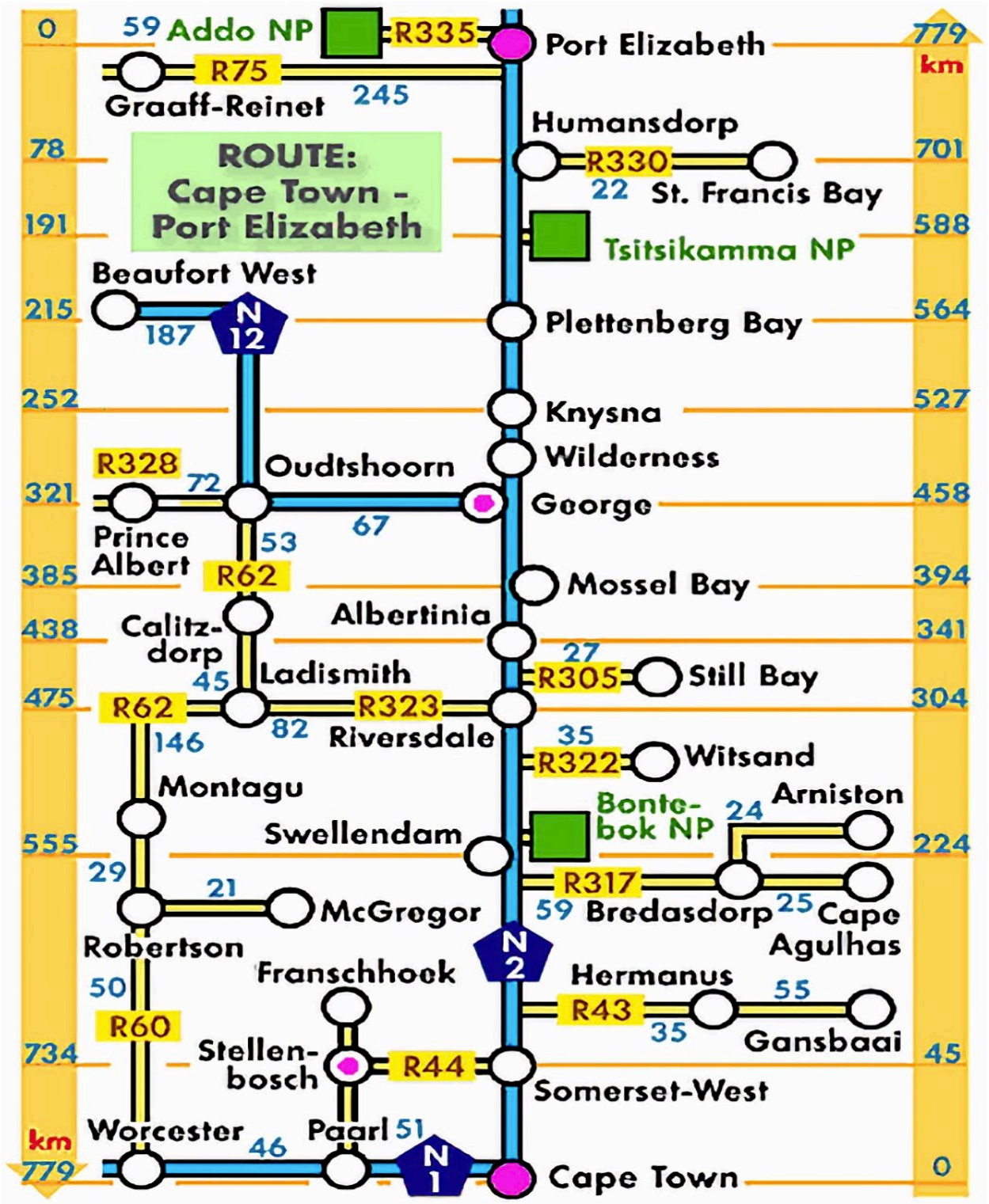
ANNEXURE A

QUESTION 1.3



ANNEXURE B

QUESTION 2.1



ANNEXURE C

QUESTION 4.1



ANNEXURE D

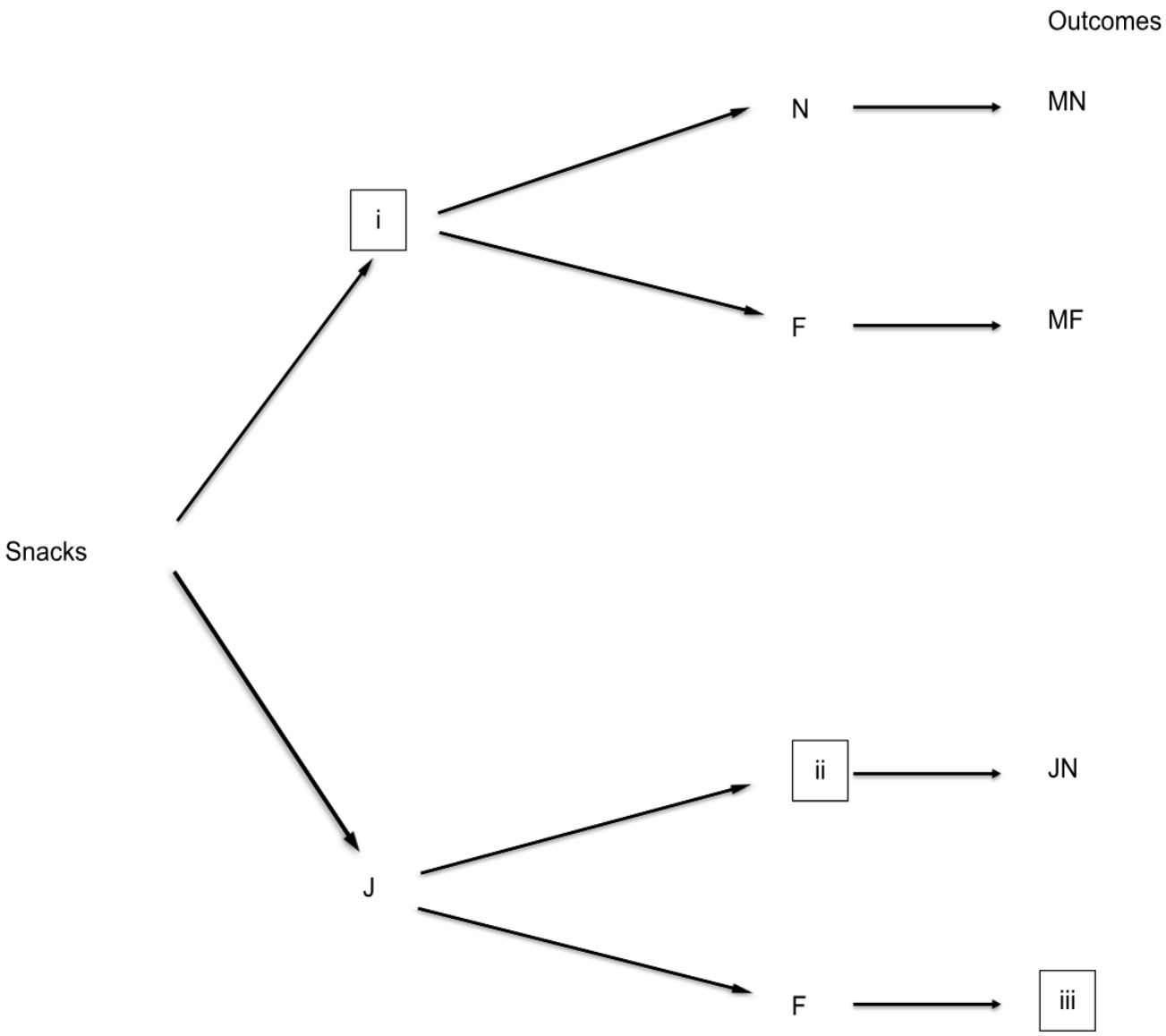
QUESTION 5.1

NORTHBOUND							
Depart	Depart	Depart	Depart	Depart	Depart	Depart	Arrive
Park Station	Rosebank	Sandton	Marlboro	Midrand	Centurion	Pretoria	Hatfield
06:45	06:49	06:53	06:57	07:04	07:13	07:23	07:30
07:00	07:04	07:08	07:12	07:19	07:28	07:38	07:45
07:15	07:19	07:23	07:27	07:34	07:43	07:53	08:00
07:30	07:34	07:38	07:42	07:49	07:58	08:08	08:15
07:45	07:49	07:53	07:57	08:04	08:13	08:23	08:30
08:00	08:04	08:08	08:12	08:19	08:28	08:38	08:45

SOUTHBOUND							
Depart	Depart	Depart	Depart	Depart	Depart	Depart	Arrive
Hatfield	Pretoria	Centurion	Midrand	Marlboro	Sandton	Rosebank	Park Station
06:38	06:48	06:55	07:04	07:10	07:15	07:19	07:23
06:53	07:03	07:10	07:19	07:25	07:30	07:34	07:38
07:08	07:18	07:25	07:34	07:40	07:45	07:49	07:53
07:23	07:33	07:40	07:49	07:55	08:00	08:04	08:08
07:38	07:48	07:55	08:04	08:10	08:15	08:19	08:23
07:53	08:03	08:10	08:19	08:25	08:30	08:34	08:38

ANNEXURE E

QUESTION 5.2



END

3.6 The concrete mix is sold strictly in wheelbarrows at a local hardware store.

Take note of the following:

- 1 m^3 = 20 wheelbarrows.
- The cost of 1 m^3 of concrete mix is R1 800.

Use calculations to determine whether the cost of the concrete mix needed to half-fill the braai stand will be less or more than R300. (9)

[32]

QUESTION 4

4.1 Tshepo is planning to travel from Centurion to visit his family in Soweto. He studies a map as he is a new driver. Study the map in ANNEXURE C and answer the following questions.

4.1.1 Name the type of scale that is used in the map. (2)

4.1.2 Name the neighbouring provinces found on the eastern and western sides of Gauteng. (2)

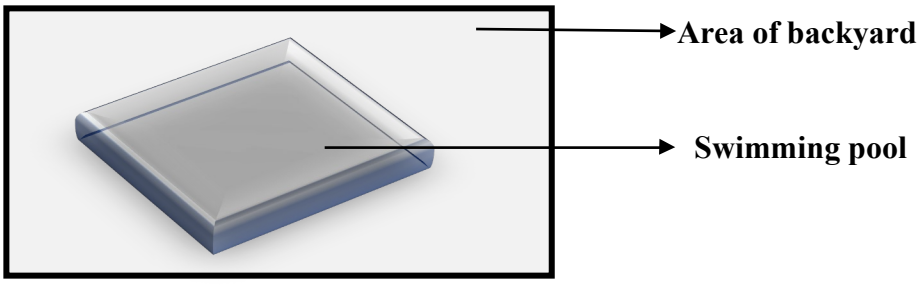
4.1.3 Use the given scale to calculate the actual distance between Centurion and Soweto. Round-off your answer to the nearest kilometre. (6)

4.1.4 Hence, determine the number of litres of petrol required to cover the return trip if the consumption rate of Tshepo's car is 0,086 ℓ/km. (5)

4.1.5 What is the probability of finding a toll gate in the south eastern side of Johannesburg? Express your answer as a percentage. (3)

4.2 Tshepo decided to pave the swimming pool area of his family home in Soweto.

- The shape of the swimming pool is square with each side = 9,84252 ft
- 1 ft = 0,3048 m
- The area of the backyard where the swimming pool is situated is 7 m by 5 m.



4.2.1 Convert the side of the swimming pool to metres. (2)

4.2.2 Hence, determine the perimeter of the swimming pool in metres.

You may use the formula: **Perimeter = 4 × side** (2)

4.2.3 The swimming pool is usually not filled to the top. What could be a possible reason for this? (2)

4.2.4 Explain the difference between *capacity* and *volume* in this context. (4)

4.2.5 Determine in m^2, the area of the backyard that will NOT be paved.

You may use the formulae: **Area of square = side × side**
Area of rectangle = length × width (7)
[35]

QUESTION 5

5.1 Sipho lives in Pretoria and travels daily to his workplace in Rosebank using the Gautrain.

- His reporting time (starting time) is 08:00 every day.
- He walks for 10 minutes to his workplace in Rosebank.

Study the Gautrain timetable in ANNEXURE D and answer the following questions.

5.1.1 Which train (southbound or northbound) must he take in the morning to work? Explain your answer. (2)

5.1.2 What is the LATEST that he should depart from Pretoria if he wants to be at work on time? (2)

5.1.3 Calculate the duration of Sipho's journey to work, including the walking time. (3)

5.1.4 Give TWO advantages of using the Gautrain. (4)

5.1.5 The average temperature in Pretoria in December is 30 °C. Convert this temperature to °F.

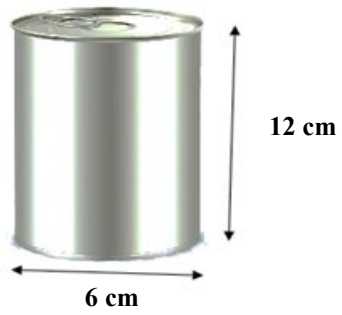
You may use the formula: **°F = (1,8 × °C) + 32°** (2)

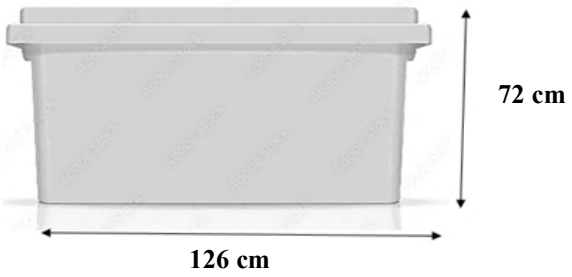
5.2 Sipho decided to change his lifestyle and eat healthy meals only. He decided to drink milk (M) or juice (J) and eat nuts (N) or fruit (F) during tea breaks. He used a tree diagram to explore the possible options of snacks.

Study the tree diagram in ANNEXURE E and complete it by writing the correct letter next to **(i) – (iii)** in your ANSWER BOOK (6)

5.3 Sipho bought canned fruit and he must pack the cans in a plastic container. The dimensions of a can and the container are as follows:

Can	Plastic container
Diameter: 6 cm Height: 12 cm	Length: 126 cm Height = 72 cm Width = 53 cm





Tumelo advised Sipho to pack the cans upright so that he can pack 1 134 cans in the container. Verify his claim. (7)

[26]

TOTAL: 150

END