education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 11

MATHEMATICAL LITERACY P2

NOVEMBER 2024

MARKS: 100

TIME: 2 hours

This question paper consists of 12 pages and an annexure.

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INSTRUCTIONS AND INFORMATION

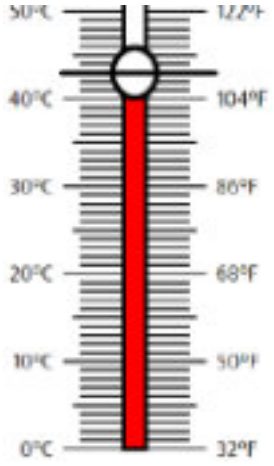
1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the attached ANNEXURE for QUESTION 2.1.
3. Start EACH question on a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. You may use an approved calculator (non-programmable 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. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

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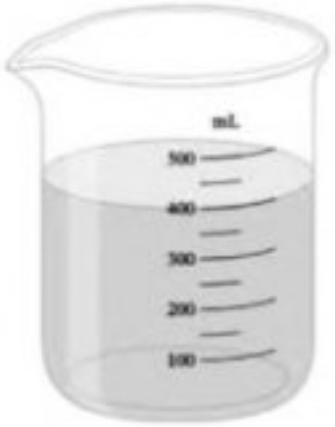
QUESTION 1

1.1 The following measuring instruments are given below:

A.



B.



C.



Use the measuring tools abovu to answer the questions that follow.

1.1.1 (a) Name the instrument labelled **A**. (2)

(b) Define the concept *temperature*. (2)

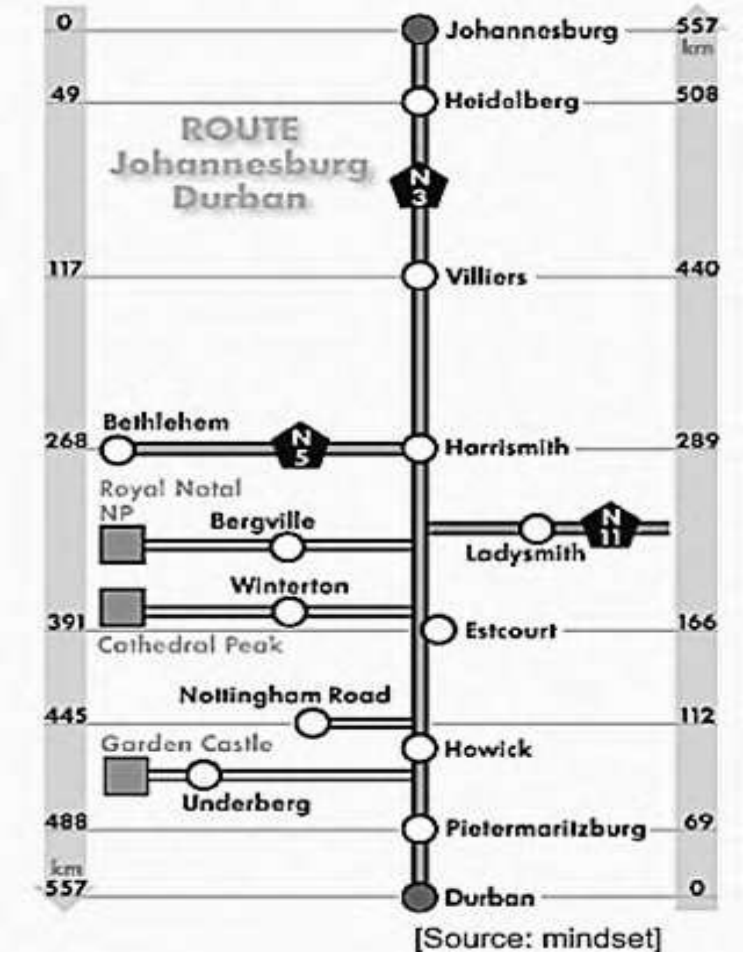
(c) Write, in ^{o}C, the temperature at the black line on the instrument labelled **A**. (2)

1.1.2 Convert the volume of the substance in the container **B** to litres. (2)

1.1.3 Determine, in mm, the distance between the two arrows on the ruler in diagram **C**. (3)

1.2 Lelo will be travelling from Johannesburg to Durban for the holidays. She will use the map below to plan her journey.

MAP OF THE ROUTE FROM JOHANNESBURG TO DURBAN



[Source: mindset]

Use the map above to answer the questions that follow.

1.2.1 Identify the type of map shown above. (2)

1.2.2 Determine, in metres, the actual distance between Johannesburg and Villiers. (2)

1.2.3 Name the town that is 166 km from Durban. (2)

1.2.4 Write down the total number of towns on the N3 that Lelo must pass on her way to Durban. (2)

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QUESTION 2

2.1

The ANNEXURE shows the layout plan of Thuto Secondary School.

Besides the classrooms and other buildings, the school has two science laboratories (Sci 1 and Sci 2) and a quad which is the open-air space for assemblies.

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

2.1.1 Identify the room that is between the staff room and the tuck shop. (2)

2.1.2 Use the compass direction to determine on which sides of the school hall, the doors are situated. (2)

2.1.3 The two music classrooms are stand-alone (not attached) classrooms.

(a) Write down the numbers of these classrooms. (2)

(b) Describe the location of the music classrooms in relation to the streets shown on this layout plan. (3)

2.1.4 A learner followed these directions to locate his classroom:

- From the main office he walked in a southerly direction.
- He turned right after passing the quad and continued straight.
- The second last classroom on his left-hand side was his classroom.

Write down the learner's classroom number. (2)

2.1.5 Give ONE reason why Mimosa Avenue was designed as a one-way road. (2)

2.1.6 Calculate, as a percentage, rounded to THREE decimal places, the probability of finding a classroom with its door on the western side. (4)

2.2 Learners from Thuto Secondary School uses different modes of transport to get to school.

2.2.1 Solly, one of the learners, travels 12 km in 60 minutes to get to school.

Calculate, in metres per minute **(m/min**), Solly's average speed.

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

2.2.2 Use Solly's average speed from QUESTION 2.2.1 to determine whether he was walking or using any other mode of transport. Give a reason for your answer. (3)

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QUESTION 3

3.1

Qhubeka Charity Organisation donated 127 bicycles to all learners of Thuto Secondary School who took longer than 1 hour each day to walk to school.

A second organisation provided bicycle stands for the 127 bicycles.



The rectangular floor area that are required for the parking of the bicycles is determined by considering the following:

- Each bicycle is 180 cm long and 45 cm wide.
- An additional space of 0,5 m^2 per bicycle is required for free movement around

Use the information above to answer the questions that follow.

3.1.1 Calculate, in m^2, the area of 1 bicycle.

You may use the formula: **Area of a bicycle = length × width** (3)

3.1.2 The total floor area required for the 127 bicycles is 166,37 m^2.

Verify, showing ALL calculations, how the floor area was determined. (4)

3.2 The SGB of Thuto Secondary School decides to pave the floor area where the learners will park their bicycles. They will use paving bricks like the one shown below:

INFORMATION ABOUT THE BRICKS	THE BRICK	PALLET OF BRICKS
Number of bricks per 1 m^2 **:** 48 Paving bricks are sold in pallets of 594 bricks Weight of 1 brick: 2,230 kg		

3.2.1 The SGB will buy extra 5% of bricks for wastage and breakage.

Determine the total number of bricks that the SGB will buy to pave the floor area where the bicycles will be parked. (5)

3.2.2 Determine the number of pallets of bricks that the SGB must buy. (3)

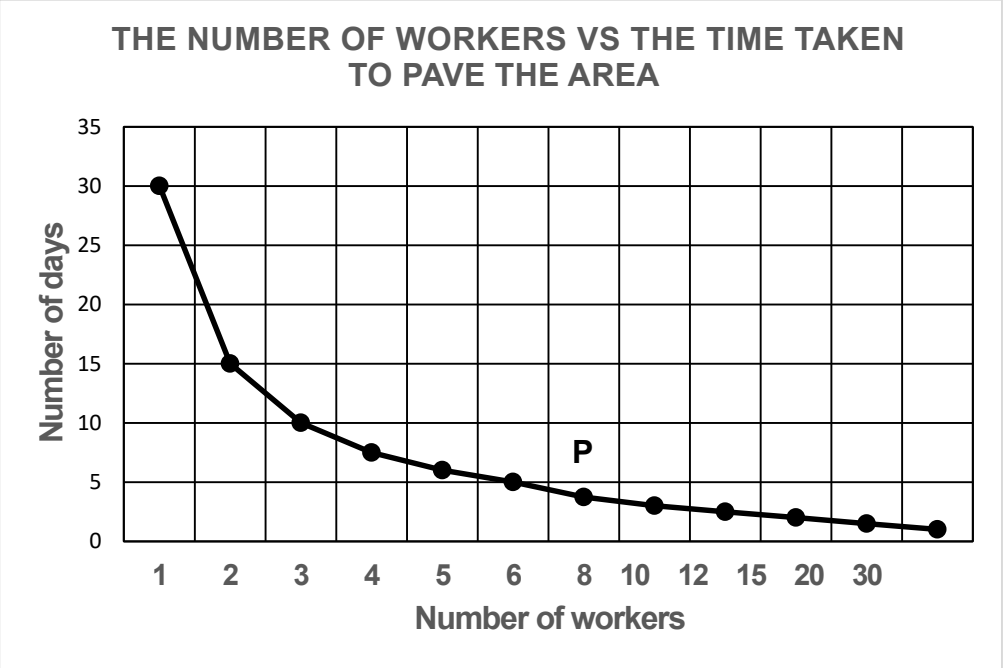
3.2.3 Determine, correct to ONE decimal place, the weight in tonnes of all the bricks needed.

NOTE: 1 ton = 1 000 kg (4)

3.3

The SGB will employ workers from the community to pave the floor area.

The graph below shows the relationship between the number of workers they employ, and the time taken to complete the paving project.



Use the graph above to answer the questions that follow.

3.3.1 Identify and explain the type of relationship represented by the graph above. (3)

3.3.2 Derive the formula to show the relationship above. (2)

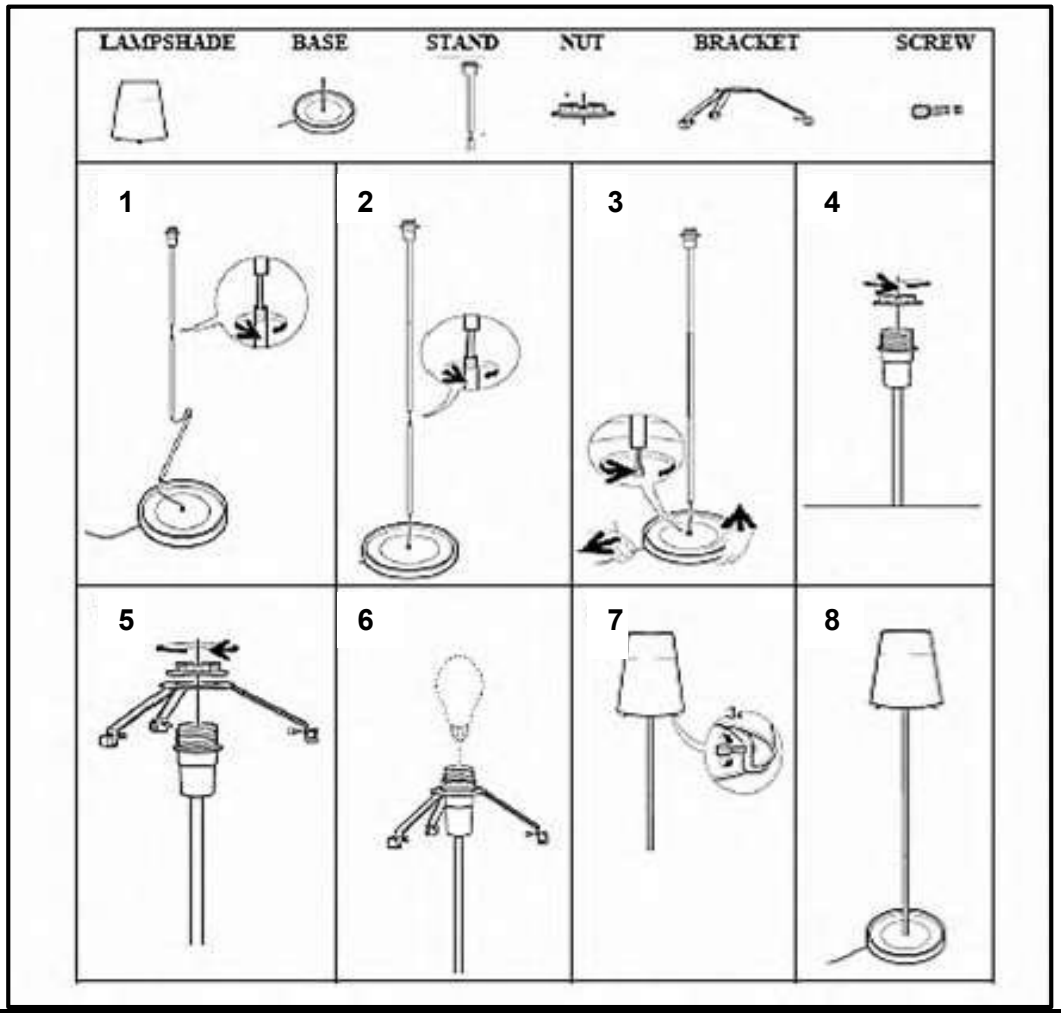
3.3.3 Use the formula in QUESTION 3.4.2 or otherwise to calculate **P**, the number of days taken by 8 workers to complete the project. (2)

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QUESTION 4

4.1 Below are the assembly diagrams for a floor lamp.

ASSEMBLY DIAGRAMS FOR A FLOOR LAMP



Use the diagram above to answer the questions that follow.

4.1.1 Refer to DIAGRAM 4.

Give the direction in which the nut should be turned. (2)

4.1.2 Which diagram is associated with the instruction: 'Join the stand to the base?' (2)

4.1.3 The actual height of the floor lamp is 1,55 m.

Determine, in cm, the height of the floor lamp in the diagram if the scale is 1 : 25 (3)

4.2

Peter works for a courier company in Rustenburg. The company collects packages, in boxes, from different warehouses across the country and delivers them to clients within 48 hours. Below are the dimensions of a box, that must be delivered.

DIMENSIONS OF A BOX	THE BOX
Length: 340 mm Width: 325 mm Height: 180 mm	

Use the information above to answer the questions that follow.

4.2.1 Define the concept *volume.* (2)

4.2.2 Calculate, in m^3, the volume of the box.

You may use the formula: **Volume of a box = length × width × height** (3)

4.2.3 Peter drives a delivery van as the one shown below:

DIMENSIONS OF THE DELIVERY VAN	THE DELIVERY VAN
length: 1 700 mm width: 1 490 mm height: 1 200 mm	

Calculate the maximum number of boxes that can be packed into the van as follows:

- the length of the box along the length of the van,
- the width of the box along the width of the van and
- then boxes are stacked to the roof of the van. (6)

4.2.4 Peter picked up the parcels at 14:50 from the warehouse on 30 June and delivered one parcel at 08:15 on 2 July.

Verify, showing ALL calculations, whether this delivery was done within the specified delivery time of 48 hours. (4)

4.3

Tshidi is a soccer player, and she is concerned about her weight. Her current BMI is 18,2 kg/m^2 and a height of 1,56 m.

The table below shows the weight status versus the BMI range.

TABLE: WEIGHT STATUS ACCORDING TO BMI.

BMI RANGE (in kg/m^2)	WEIGHT STATUS
Less than 18,5	Underweight
From 18,5 – 24,9	Normal weight
From 25 - 30	Overweight
More than 30	Obese

Use the information above to answer the questions that follow.

4.3.1 Write the acronym BMI in full. (2)

4.3.2 State Tshidi's current weight status. (2)

4.3.3 Calculate Tshidi's current mass.

You may use the formula: $\textbf{BMI} = \frac{\textbf{Mass in kg}}{(\textbf{height in m})^2}$ (3)

4.3.4 Provide an advice to Tshidi on how she can improve her weight status. (2)

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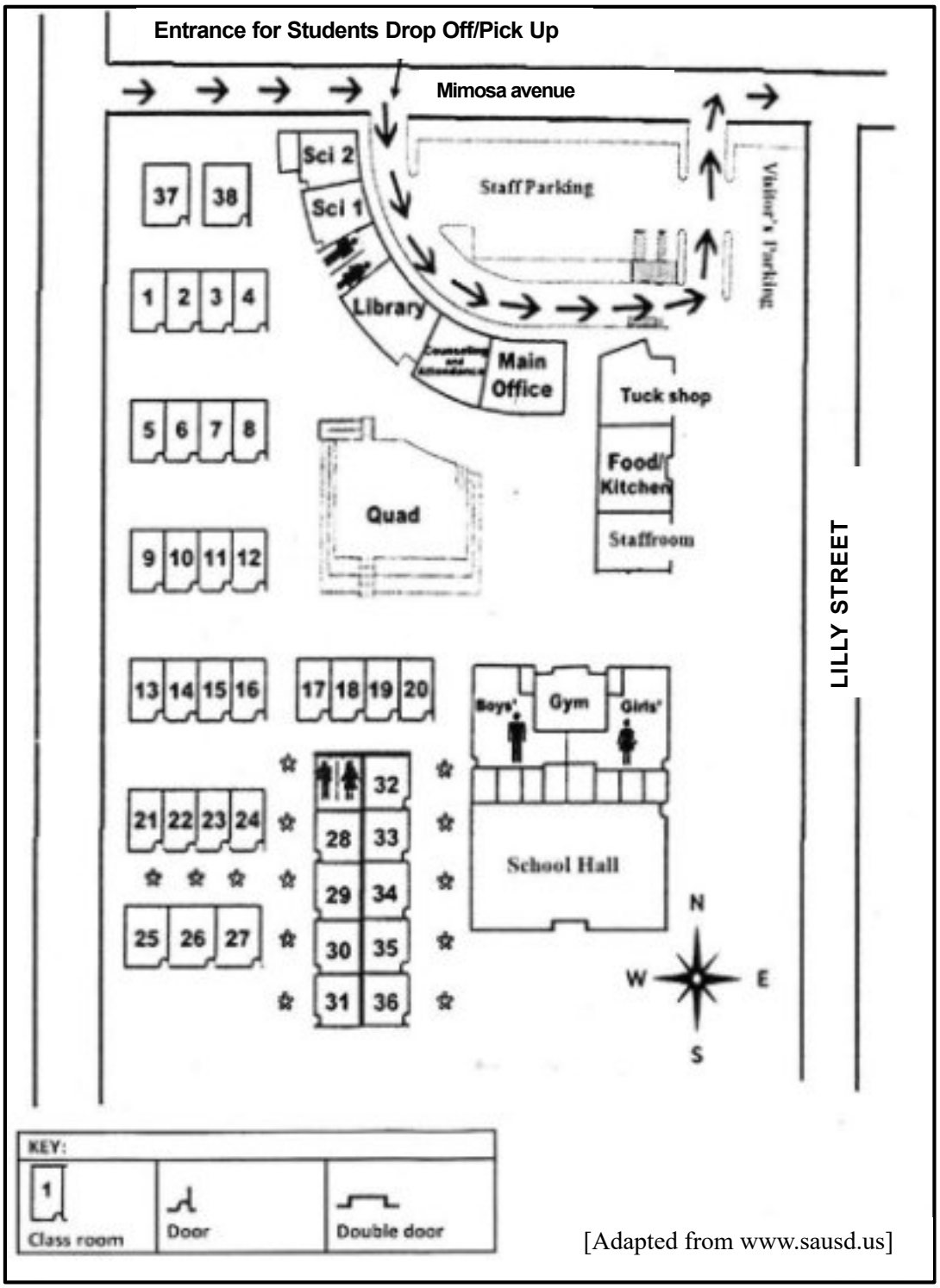
TOTAL: 100

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ANNEXURE

QUESTION 2.1

LAYOUT PLAN OF THUTO SECONDARY SCHOOL



[Adapted from www.sausd.us]

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