



KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

**UMKHANYAKUDE DISTRICT
MATHEMATICAL LITERACY
AUGUST TEST 2026**

GRADE 12

TOTAL: 100 marks

DURATION: 2 hours

This paper consists of 12 pages

Instructions

1. This question paper consists of **FIVE** questions.
2. Answer **ALL** the questions.
3. Number your answers correctly according to the numbering system used in this question paper.
4. An approved calculator (non-programmable and non-graphical) may be used unless otherwise stated.
5. Show **ALL** calculations clearly.
6. Round off **ALL** final answers appropriately according to the given context, unless otherwise stated.
7. Indicate units of measurement where applicable.
8. Start **EACH** question on a **NEW** page.
9. Write neatly and legibly.

QUESTION 1

1.1

Thabo Ndlovu works as a Water Engineer for the National Department of Water and Sanitation in Pretoria. At the end of every month, he receives a salary after deductions have been made from his gross earnings. The salary slip below shows Thabo's earnings and deductions for April 2026.

NATIONAL DEPARTMENT OF WATER AND SANITATION			
SALARY SLIP			
Employee Name		Thabo Ndlovu	
Designation		Water Engineer	
Department		Water and Sanitation	
Notch		674 400	
Persal No.		125006788	
Month		30 April 2026	
EARNINGS		DEDUCTIONS	
Salary head	Amount	Salary head	Amount
Basic	R 56 200	Tax RSA	R 14 622
Housing Allowance	R 1 950	GEPF	R 4 215
Medical Allowance	R 3 500	GEMS	R 3 330
Transport Allowance	R 4 450	Housing Bond	R 12 500
		Sanlam Insurance	R 750
SALARY (GROSS)	R 65 900	TOTAL DEDUCTIONS	A
SALARY (NET)	R 30 500		

Use the payslip above to answer the following questions.

- 1.1.1
- Write down the acronym GEPF in full.
- (2)
- 1.1.2
- Define net salary in the given context.
- (2)
- 1.1.3
- Determine the missing value A, which represents Thabo's total deductions.
- (2)
- 1.1.4
- Express, as a unit ratio correct to THREE decimal places, Thabo's transport allowance to her net salary.
- (2)

1.1.5

Express Thabo’s tax as a percentage, correct to the nearest whole number, of her basic salary.

(3)

1.2

Phetolo is researching African countries with the highest literacy rates in 2023 and 2024.

TABLE 1: AFRICAN COUNTRIES WITH THE HIGHEST LITERACY RATES IN 2023 AND 2024

Country	Literacy (%) in 2023	Literacy (%) in 2024	Population in 2024
Botswana	87.0	88.5	2 351 627
Burundi	87.0	85.6	11 890 784
Cape Verde	85.0	87.6	555 987
Equatorial Guinea	95.0	95.3	1 402 983
Gabon	82.0	83.2	2 225 734
Libya	90.0	91.0	6 871 292
Mauritius	89.0	90.6	1 271 768
Seychelles	94.0	91.8	98 347
South Africa	93.0	94.3	59 308 690
Zimbabwe	84.0	86.5	14 862 924

Use Table 1 above to answer the questions that follow.

1.2.1

Identify the country with the lowest literacy rate in 2024.

(2)

1.2.2

State a suitable data collection method that could have been used to collect the data above.

(2)

1.2.3

Arrange the literacy percentages for 2023 in descending order.

(2)

1.2.4

Determine the probability of selecting an African country with a literacy rate of less than **82%** in 2023.

(2)

1.3

The South African Airways recommends that each passenger’s checked luggage should **NOT exceed 45 kg**. Passengers whose luggage exceeds this limit are required to pay an additional excess baggage fee.

The luggage masses of the passengers were summarised using the **box-and-whisker plot**.

Use the information and the box-and-whisker plot above to answer the following questions.

- 1.3.1 State the percentage of passengers whose luggage was below the recommended mass limit. (2)
- 1.3.2 One-quarter of the passengers had to pay an additional charge because their luggage was excessively overweight. Write down the lowest luggage mass in this group. (2)
- 1.3.3 Determine the interquartile range (IQR) of the data.
- Use the formula: : $IQR = Q_3 - Q_1$ (2)
- 1.3.4 The "+" sign on the box-and-whisker plot indicates an outlier. Explain the meaning of the term **outlier** in the given context. (2)

[27]

QUESTION 2

2.1

Mr Khumalo is 57 years old and earns an annual gross salary of R561 450. He also receives an annual bonus equal to one month's gross salary. He has two children and contributes to a medical aid scheme for himself and his children. He contributes 7,5% of his monthly salary to a pension fund and donates R2 000 per month to his church.

Use the **2025/2026 tax table** below to answer the following questions.

2025/2026	
Taxable Income	Rates of Tax
R0-R237 100	18% of each R1
R237 101 –R370 500	R42 678 +26% of the amount above R237 100
R370 501- R512 800	R77 362 + 31%of the amount above R370 500
R512 801- R673 000	R121 475 +36% of the amount above R512 800
R673 001- R857 900	R179 147 + 39% of the amount aboveR673 000
R857 901- R1 817 000	R251 258 +41% of the amount above R857 900
R1 817 001 and above	R644 489 + 45% of the amount above R1 817 000
REBATE	
Primary R17 235	Below age 65 R95 750
Secondary R9 444	Age 65 and over R148 217
Tertiary R3 145	Age R75 and over R165 689
MEDICAL TAX CREDITS	
R364 Main member	
R364 First dependent	
R246 for each additional dependent.	

Use the 2025/2026 tax table above to answer questions

2.1.1 Calculate the monthly pension fund contribution (3)

2.1.2 Determine the percentage of her gross monthly salary that is spent on donations. (4)

2.1.3 Calculate Mr. Khumalo's annual taxable income. You may use the formula:

Annual Taxable Income = Annual Gross Salary – Annual Pension Fund-annual
Donation + Bonus. (4)

2.1.4 Calculate Mr. Khumalo's Monthly PAYE (Tax) (8)

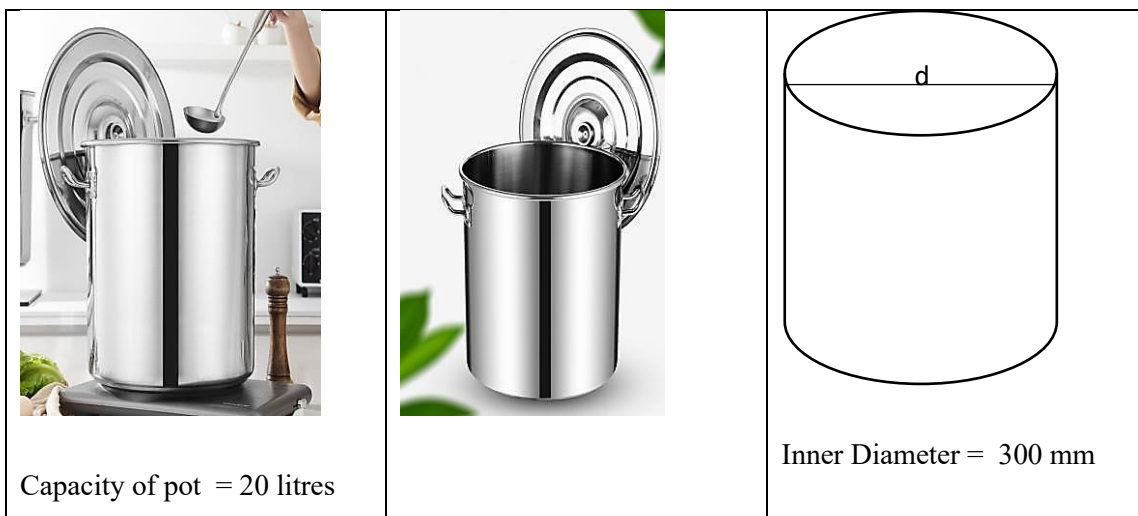
[19]

QUESTION 3

- 3.1 Martin, a Grade 12 learner, volunteers at the local community centre soup kitchen during weekends and school holidays. A soup kitchen is a community outreach programme that provides meals to people who are hungry and underprivileged.

The soup is prepared in large cylindrical soup pots, as shown in the photographs and sketch below. The diameter of each pot is represented by **d**.

Picture and sketch of soup pot



NOTE: 1 litre = 1 000cm³

Use the information above to answer the following questions:

- 3.1.1 Explain the term capacity in the given context. (2)
- 3.1.2 Convert the capacity of the pot to cm³ (2)
- 3.1.3 Determine the inner radius of the pot. (2)
- 3.1.4 Calculate the height of the soup pot in cm. Give your answer to two decimal places.

You may use the formula: **Volume = 3.142 × radius² × height** (3)

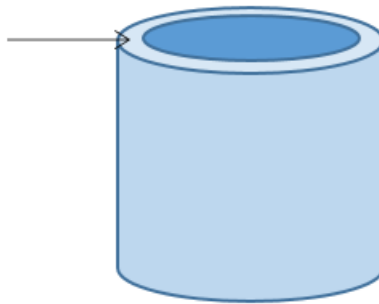
- 3.2 One of the community members wanted to make insulated pot warmers to cover the soup pots and keep the soup warm for a longer period while serving food outdoors. The pot warmer is made from a rectangular padded fabric that wraps around the cylindrical pot, leaving both the top and the bottom circular bases uncovered.

Sketch of pot warmer



The sponsor asked Martin to calculate the dimensions of the rectangular piece of fabric needed to make the pot warmer for each soup pot.

The pot warmer is 4mm thick



- 3.2.1 Convert 4 mm shown in the diagram to cm. (2)
- 3.2.2 Determine the outer diameter of the pot warmer. (2)
- 3.2.3 Hence, calculate the length of the warmer cloth in cm. (3)
- You may use the formula: $\text{Circumference} = 3.142 \times d$
- 3.2.4 The pots will be kept at 60°C . Convert the temperature to degrees Fahrenheit. (2)
- You may use the formula: $^{\circ}\text{F} = (1,8 \times ^{\circ}\text{C}) + 32^{\circ}$

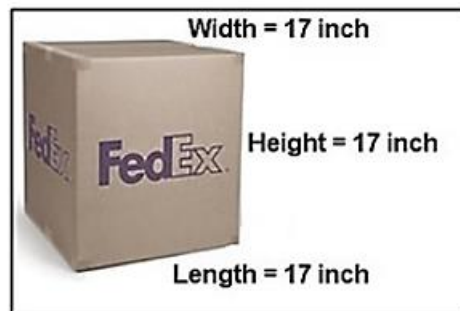
[18]

QUESTION 4

4.1

FedEx Express is an international courier company that provides fast, reliable and time – definite delivery services to more than 220 countries and territories worldwide.
A customer wants to send a 5 kg parcel anywhere in South Africa using FedEx Express box.
The delivery cost for the parcel is R2 250.

The parcel is packed in a cube-shaped box with the following dimensions:



[Adapted from : www.fedex.com]

NOTE : 1 inch = 25,4 mm

Use the information above to answer the following questions

4.1.1 Calculate, in mm, the volume of a 5 kg box.

(3)

You may use the formula : Volume = length x width x height

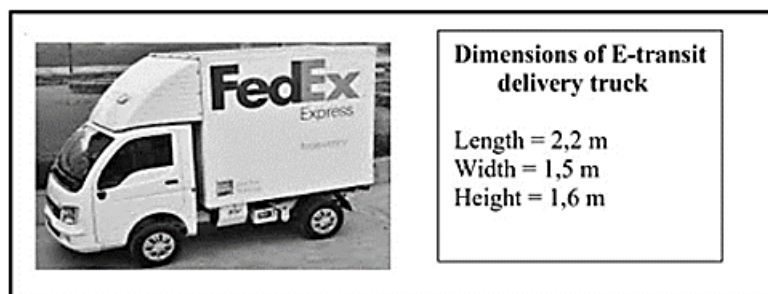
4.1.2 One of the drivers stated that the surface area of a 5 kg box is more than 2 m².

Verify, with necessary calculations, whether the drivers' statement is valid or not.

You may use the following formula

Surface area = 2 (length x width) + 2 (length x height) + 2 (width x height) (6)

4.1.3 Many of the parcel are transported with E-transit delivery truck. Given below are the dimensions of a FedEx E-transit delivery truck



(7)

Calculate the maximum number of boxes that can into the FedEx E-transit truck

4.2

FedEx travel from Detroit to Denver either by truck or plane. The travelling by truck is approximately 18 hours 48 minutes,



[Adapted from : www.googlemap.com]

Study the map above and answer the following questions

- 4.2.1 Calculate the average speed of the delivery truck in (in miles/hour travelling from Detroit to Denver,

(4)

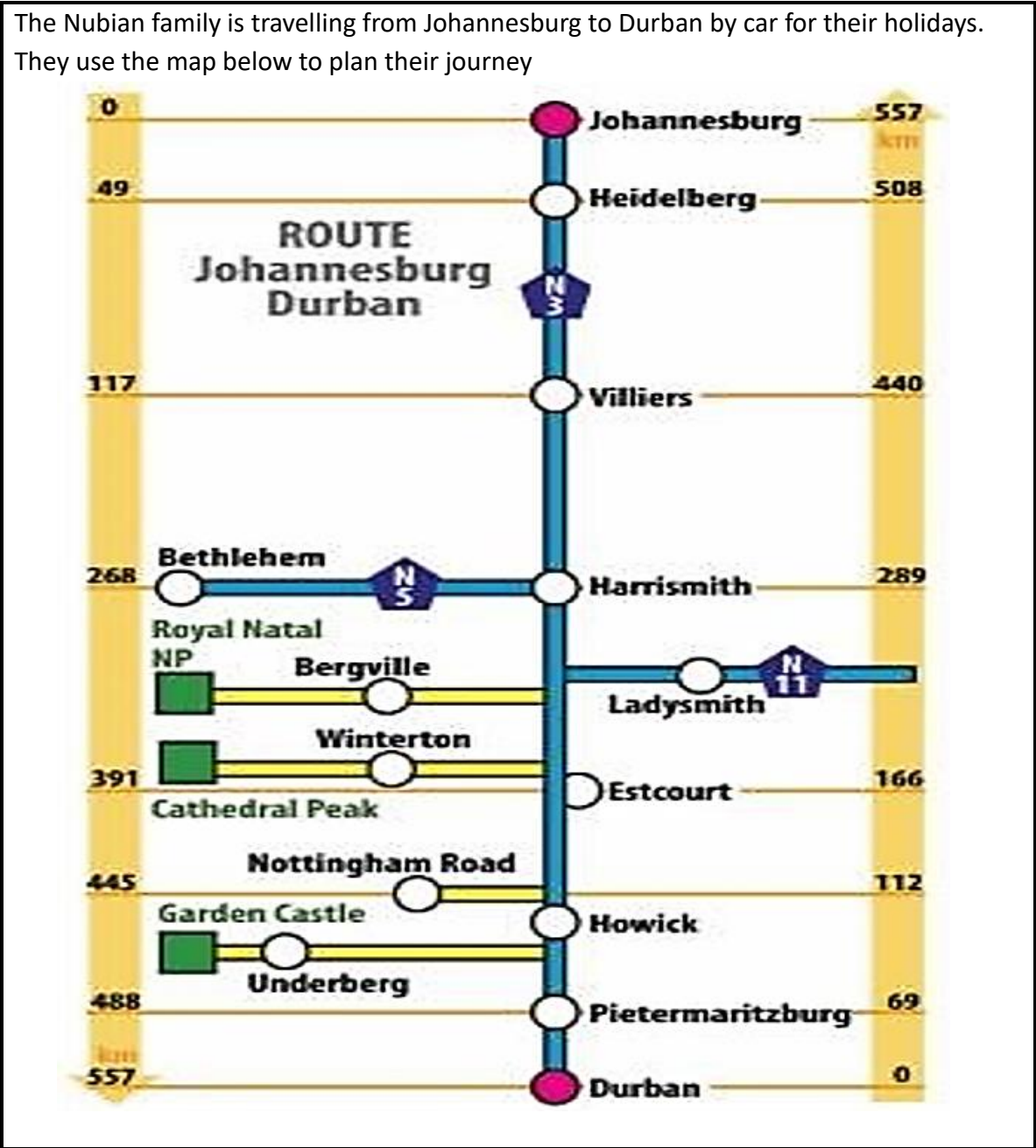
You may use the formula : $distance = speed \times time$

- 4.2.2 The flight distance between Detroit and Denver is 1 862 km, which is equal to 1 157 miles. Determine how many kilometres there are in 1 mile , rounded to 3 decimal places,

(3)

[23]

The Nubian family is travelling from Johannesburg to Durban by car for their holidays. They use the map below to plan their journey



Use the map above to answer the following questions

- 5.1.1 Write down the distance between Durban and Johannesburg. (2)
- 5.1.2 They will make a single stop along N3 to refuel and rest. Use the map to identify the suitable that will divide their journey into approximately two equal segment. Use calculations and the distance to justify your answer. (4)

- 5.1.3 Mr Nubian needs to be in Ballito at 6 pm for a meeting. Determine the latest time they can leave Johannesburg in order for him to be on the meeting on time.

ADDITIONAL INFORMATION

- One stop of 45 minutes.
- Average travelling speed of 100 km/h

You may use the formula : $Speed = \frac{Distance}{Time}$

(7)

[13]