KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

# NATIONAL SENIOR CERTIFICATE

## GRADE 12

## MATHEMATICAL LITERACY P1

## PREPARATORY EXAMINATION

## SEPTEMBER 2025

**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 11 pages and a 14-page SPECIAL ANSWER BOOK.**

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**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of FIVE questions. Answer ALL the questions.

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

3. You may use an approved calculator (non-programmable and non-graphical), unless stated 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. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

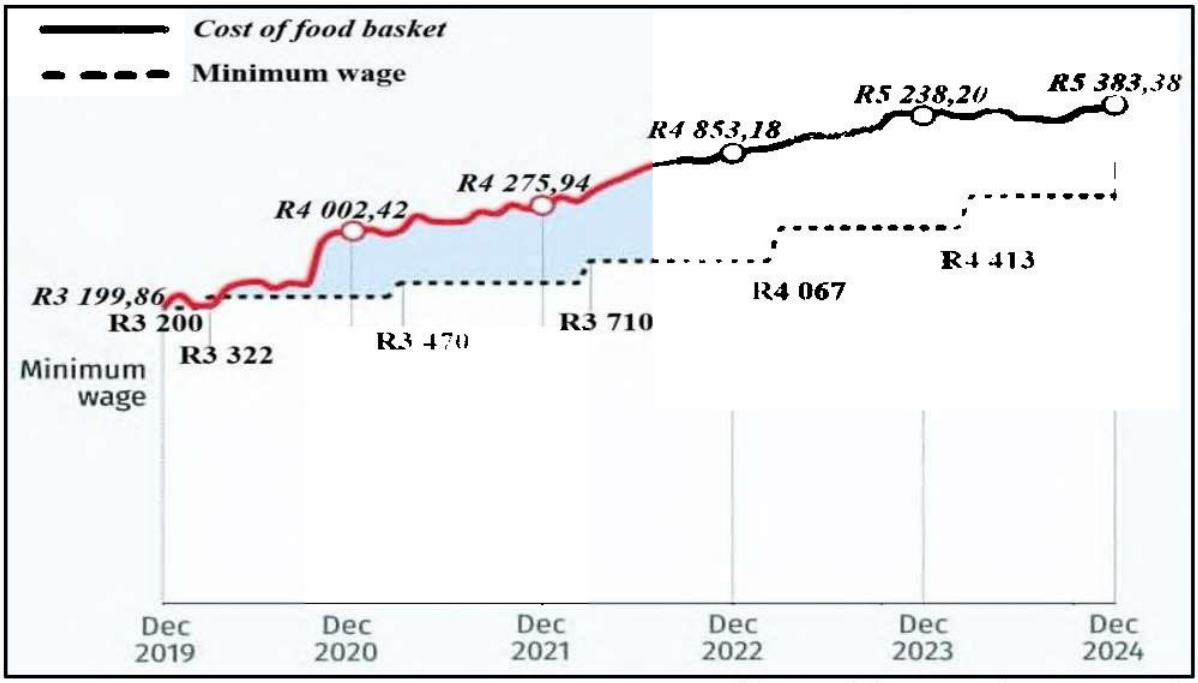
8. Write neatly and legibly.

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## QUESTION 1

1.1 The graph above shows the cost of a basic food basket and the minimum wage from December 2019 to December 2024.

**THE COST OF A BASIC FOOD BASKET AND THE MINIMUM WAGE**




**[Extracted from www.instagram.com]**

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

1.1.1 Write down the cost of the food basket in December 2019 in words. (2)

1.1.2 Identify the minimum wage in December 2021. (2)

1.1.3 Round off the cost of a food basket in December 2022 to the nearest hundred rands. (2)

1.1.4 Determine the difference between the cost of the food basket and the minimum wage in December 2024. (2)

1.1.5 Name the type of graph used to represent the minimum wage. (2)

1.1.6 The probability that a randomly selected minimum wage is less than the cost of the food basket in December 2021 is $\frac{5}{6}$.

Express this probability as a percentage. (2)

1.2 TABLE 1 below shows an MTN contract offer.

**TABLE 1: MTN CONTRACT OFFER**

| | Description | Cost per Month | Contract Period |
|---|---|---|---|
| **Device** | Samsung Galaxy S25 Ultra (256 GB) | R660 | 36 months |
| **Plan** | Yellow Delux: 6 GB anytime data<br>250 all-net minutes (FREE) | R439 | 36 months |

[**Adapted from www.mtn.co.za**]

**NOTE: 1 gigabyte** (GB) = **1 000 megabytes**

Use TABLE 1 and the information above to answer the questions that follow.

1.2.1 Convert the contract period to years. (2)

1.2.2 Determine the total amount the customer will pay for the 36-month contract. (3)

1.2.3 Calculate the total data the customer will receive in 36 months, expressed in megabytes. (3)

1.2.4 State ONE financial advantage of choosing this contract option instead of buying the phone cash and using prepaid services. (2)

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1.3 TABLE 2 below shows the number of learners and schools requiring transport in the nine provinces, as well as those that received transport in 2023/2024.

**TABLE 2: NATIONAL LAND TRANSPORT PROGRAMME PERFORMANCE 2023/2024**

| NLTP PERFORMANCE 2023/2024 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PROVINCE** | **NEEDS** | | **TARGET** | | | **ACTUAL FIGURES** | | |
| | No. of Learners in Need | No. of Schools in Need | No. of Learners Targeted | No. of Schools Targeted | % of Learners Targeted | No. of Learners Transported | No. of Schools | % Learners Against the Need |
| Eastern Cape | 131 272 | 1 127 | 103 000 | 1 044 | 75% | 124 421 | 1 004 | 91% |
| Free State | 8 431 | 147 | 8 431 | 147 | 100% | 9 958 | 147 | 118% |
| Gauteng | 217 664 | 690 | 200 750 | 644 | 92% | 206 219 | 649 | 95% |
| KwaZulu Natal | 237 066 | 1 571 | 62 000 | 423 | 26% | 74 359 | 433 | 31% |
| Limpopo | 72 480 | 568 | 64 907 | 538 | 90% | 67 382 | 538 | 93% |
| Mpumalanga | 73 722 | 353 | 72 809 | 336 | 99% | 72 809 | 336 | 99% |
| North West | 63 708 | 418 | 58 979 | 340 | 93% | 57 907 | 343 | 91% |
| Northern Cape | 26 783 | 278 | 26 286 | 269 | 98% | 26 776 | 272 | 100% |
| Western Cape | 63 820 | 483 | 63 820 | 483 | 100% | 67 222 | 495 | 105% |
| **TOTAL** | **900 946** | **5 635** | **660 982** | **4 224** | **73%** | **707 053** | **4 217** | **78%** |

**[Adapted from www.citizen.co.za]**

Use TABLE 2 and the information above to answer the questions that follow.

1.3.1 State whether the data in the table above is discrete or continuous. (2)

1.3.2 Name the province with an outlier in the number of schools targeted for transport. (2)

1.3.3 Identify how many schools in Gauteng are in need of transport assistance. (2)

1.3.4 Express the total number of learners transported in 2023/2024 in millions. (2)

**[30]**

## QUESTION 2

2.1 Mr S Sampson receives his monthly bank statement. An extract from this statement is provided in ANNEXURE A in the ANSWER BOOK.

**NOTE: Branch Cash Withdrawal:** Transaction fee = R90 + R4 per R100 or part thereof

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

2.1.1 Explain the term *debit order* according to the context. (2)

2.1.2 State ONE reason why many individuals prefer to receive their bank statements via email. (2)

2.1.3 Determine the value of **A**, which has been omitted from the bank statement. (2)

2.1.4 Calculate the total amount of all the debit transactions. (3)

2.1.5 Calculate the percentage that the total debit transactions represent of the final balance amount of R55 748,07. (3)

2.1.6 Determine the probability, expressed as a simplified fraction, that a randomly selected transaction is greater than R1 000. (3)

2.1.7 Calculate the transaction fee for Mr. Sampson's withdrawal of R10 600 made inside the branch. (4)

2.1.8 Suggest ONE strategy that Mr Sampson can implement to reduce his monthly spending. (2)

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2.2 Mr. Sampson has a daughter who will enter Grade 8 in 2026. He has applied for her admission to a public school, and the breakdown of the school fees is as follows:

- Annual fees: R19 000
- Once off non-refundable admin fee: R150 (to accompany the application form)
- School Entrance Levy: R750 (to be paid when confirming acceptance)
- School Fee Deposit: R5 850 (to be paid when confirming acceptance)
- Stationery Fee: R900 (to be paid when confirming acceptance)
- 10% discount on annual school fees if all fees are paid by end of March

**[Adapted from Public School Info Website]**

Use the information above to answer the questions that follow.

2.2.1 Calculate the total amount required to confirm acceptance. (3)

2.2.2 Determine the outstanding school fees balance after the deposit is paid to confirm acceptance. (2)

2.2.3 Mr. Sampson has organised extra Mathematics lessons for his daughter at R800 per month from January to October.

If he plans to pay the full annual school fees by the end of March, calculate the total amount he will spend on her education in 2026. (6)

**[32]**

## QUESTION 3

3.1 Stock theft remains a major concern in rural areas of South Africa. ANNEXURE B in the ANSWER BOOK shows the types of livestock stolen from January 2025 to March 2025.

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

3.1.1 Identify the most frequently stolen type of livestock. (2)

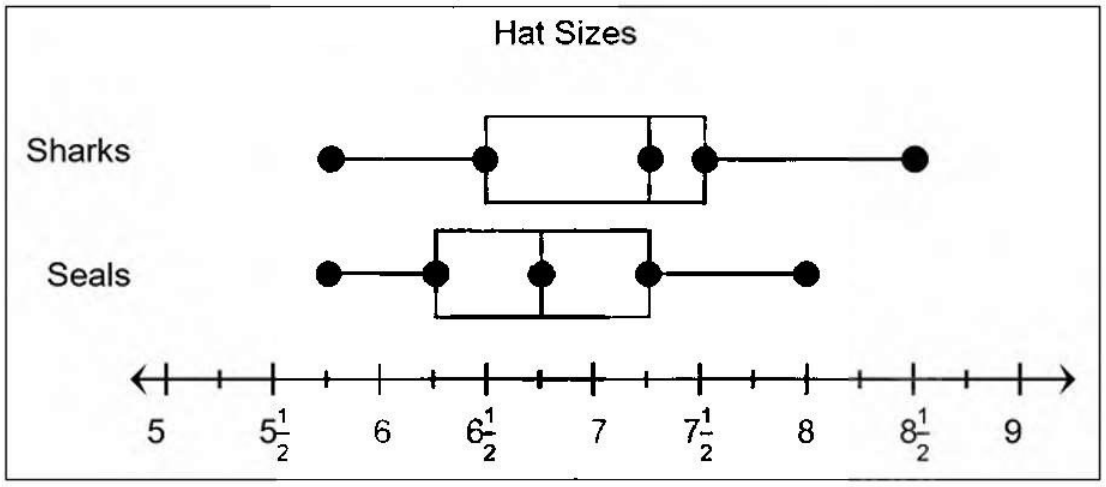
3.1.2 Calculate the range of livestock stolen from January to March 2025. (2)

3.1.3 The mean number of livestock stolen is 5 245. A provincial police commissioner claimed that the missing value **B** (representing the number of goats stolen) is exactly 12 027.

Use calculations to verify the commissioner's claim. (5)

3.1.4 Determine poultry thefts as a percentage of the total livestock thefts, rounded to TWO decimal places. (3)

3.2 A student from a Sports Academy collected data on the hat sizes of two baseball teams, the Sharks and the Seals. This data is shown in the graph below.




[Adapted from www.consenzaassociates.com]

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

3.2.1 Define a *box-and-whisker* plot. (2)

3.2.2 Calculate the interquartile range (IQR) for the Sharks team. (4)

3.2.3 Compare the hat sizes between the two teams. (5)

3.2.4 Give ONE reason for using the interquartile range (IQR) instead of the range to describe data. (2)

**[25]**

## QUESTION 4

4.1 A local rugby team is planning a tour to four countries: the United States, the United Kingdom, Australia, and Ireland. Below is a summary of the exchange rates for these countries.

**TABLE 3: NEDBANK EXCHANGE RATES**

| Country | Bank Buy | Bank Sell |
|---|---|---|
| US Dollar ($) | 0,0571 | 0,0541 |
| British Pound (£) | 0,0425 | 0,0400 |
| Euro (€) | 0,0507 | 0,0475 |
| Australian Dollar (AUSD) | 11,0619 | 12,2100 |

**[Adapted from www.nedbank.co.za]**

Use TABLE 3 and the information above to answer the questions that follow.

4.1.1 Identify the country in the table where the exchange rate is given as rand per unit of foreign currency. (2)

4.1.2 Using the Bank Buy rate, calculate the value of £1 in rands.
Express your answer in the form:

£1 = R …. (3)

4.1.3 A rugby player plans to exchange R25 000 for euros. Identify the exchange rate the bank will apply and calculate the amount of euros he will receive. (4)

4.1.4 At the end of the tour, a rugby player has 27 AUD and 105 USD to convert to rands. Calculate the total amount he will receive in rands. (6)

4.2 Khethelo, a rugby player, downloaded the Hoghton temperature graph for the United Kingdom, which is shown in ANNEXURE C in the ANSWER BOOK.

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

4.2.1 Write down the stage of the statistical cycle displayed in ANNEXURE C. (2)

4.2.2 Determine the median of the High temperatures. (4)

4.2.3 A month is selected at random. Calculate the probability that its Low temperature is below 7.3 °C. Express your answer as a percentage. (3)

4.2.4 Khethelo stated that the difference between the interquartile range (IQR) of the Low Temperatures and the range of the High Temperatures is 6,3°C, rounded to one decimal place.

Show, by means of calculations, whether Khethelo's statement is CORRECT.

**NOTE: $Q_1$ and $Q_3$ for Low Temperatures are 2,35 °C and 8,9 °C respectively.** (8)

**[32]**

## QUESTION 5

5.1 Mbongeni, a pharmacist at a local hospital with 30 years of service and an annual salary of R584 300, wants to find out his monthly annuity if he retires at the end of 2025.

The Government Employees Pension Fund (GEPF) applies the following formulae:

- Gratuity = 6.72% x annual salary x years of pensionable service
- Annual annuity = (1/55 x annual salary x years of pensionable service) + R360

**Gratuity** is lump-sum payment received upon retirement.
**Annual annuity** is the annual payment received from a person's retirement savings from which monthly payments are determined.
**Income replacement ratio (IRR)** shows the percentage of pre-retirement income replaced by retirement benefits.

[**Adapted from www.mayaonmoney.co.za**]

Use the information above to answer the questions that follow.

5.1.1 Determine Mbongeni's current monthly salary. (2)

5.1.2 Mbongeni states that the gratuity he will get when he retires is approximately R1 200 000 rounded off to the nearest R100 000.

Verify, showing ALL calculations, whether his statement is CORRECT. (4)

5.1.3 Use the annual salary to calculate Mbongeni's monthly annuity. (4)

5.1.4 Hence, calculate Mbongeni's income replacement ratio.

You may use the formula:

$$\textbf{INCOME REPLACEMENT RATIO (IRR)} = \frac{\textbf{Monthly Annuity}}{\textbf{Monthly Income at Retirement}} \times \textbf{100 \%}$$

(2)

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5.2 The Sithole family, residing in Johannesburg, purchases prepaid electricity from the Johannesburg City Municipality. Below are the tariff rates for the 2024/2025 period.

**TABLE 4: JOHANNESBURG CITY PREPAID TARIFF RATES 2024/2025**

| BLOCK | SIZE | TARIFF (c/kWh) (15 % VAT Excl.) |
|---|---|---|
| 1 | 0 – 350 kWh | 221,62 |
| 2 | > 350 – 500 kWh | 271,10 |
| 3 | > 500 kWh | 322,61 |

**[Adapted from www.joburg.org.za]**

Use TABLE 4 and the information above to answer the questions that follow.

5.2.1 Mr Sithole purchased prepaid electricity for R1 200 (including VAT) to prepare for his daughter's 21st birthday celebration. Calculate the VAT amount. (4)

5.2.2 Calculate the number of electricity units purchased with R1 200 using the tariff rate excluding VAT. (6)

5.3 Mr Sithole invested R0,5 million for 3 years in a bank that offers an interest rate of 6,5% per annum, compounded quarterly. He claims that he will earn R24 773,24 in interest after the third quarter.

Verify with calculations whether his claim is correct. (9)

**[31]**

**TOTAL MARKS: 150**

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