basic education

Department:
Basic Education
**REPUBLIC OF SOUTH AFRICA**

# SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

## MATHEMATICAL LITERACY P1

## MAY/JUNE 2024

**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 14 pages, an ANSWER SHEET and an addendum with 2 annexures.**

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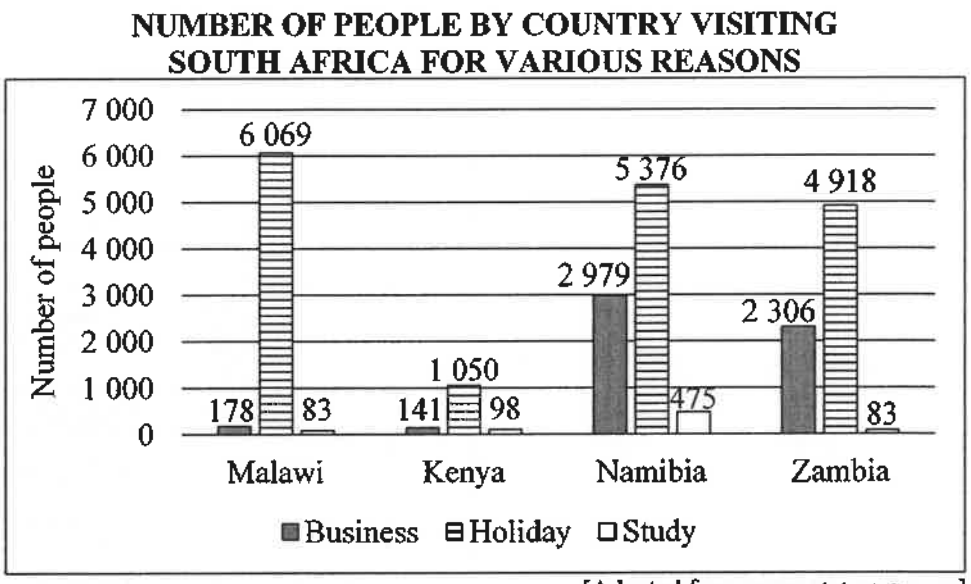
**INSTRUCTIONS AND INFORMATION**

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 2.1
   - ANNEXURE B for QUESTION 4.2
3. Use the attached ANSWER SHEET to answer QUESTION 3.2.
4. Write your centre number and examination number in the spaces provided on the ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Start EACH question on a NEW page.
7. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
8. Show ALL calculations clearly.
9. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
10. Indicate units of measurement, where applicable.
11. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.
12. Write neatly and legibly.

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## QUESTION 1

1.1 The graph below shows the number of people from four African countries visiting South Africa (SA) for various reasons.




[Adapted from www.statssa.gov.za]

Use the graph to answer the questions that follow.

1.1.1 Name the country with the lowest number of people visiting SA for business. (2)

1.1.2 Identify the countries that have the same number of people visiting SA for study purposes. (3)

1.1.3 Write down the country that has the greatest difference in people visiting SA for business, compared to those visiting SA for a holiday. (2)

1.1.4 Calculate the total number of people visiting SA for study purposes. (3)

1.2 Samuel is on a business trip to South Africa. He was informed that one of the top ten items purchased by people visiting South Africa is rooibos tea.

TABLE 1 below shows prices, including VAT, of some rooibos tea items displayed at a local tourist shop.

**TABLE 1: PRICES, INCLUDING VAT, OF SOME ROOIBOS TEA ITEMS**

| ITEM | DESCRIPTION | PRICE |
|---|---|---|
| **A** | Rooibos tea tin with 20 teabags | R40,00 |
| **B** | Rooibos tea tin with 40 teabags | R50,00 |
| **C** | Rooibos Goddess tin with 50 pyramid teabags | R100,00 |
| **D** | Teapot | R185,00 |
| **E** | Gift bag | R16,00 |

[Adapted from www.houseofrooibos]

Use TABLE 1 to answer the questions that follow.

1.2.1 Determine the price of ONE teabag if Samuel buys item **B**. (2)

1.2.2 Write, as a simplified ratio, the price of item **D** to the price of item **C**. (3)

1.2.3 Samuel decided to purchase the following items for his wife:

- Teapot
- Rooibos Goddess tin with 50 pyramid teabags
- Gift bag

Determine the total cost of his purchase. (3)

1.3 Tourists visiting South Africa need to convert their local currency to South African rand (ZAR).

TABLE 2 below shows the currency conversion factors for four African countries as at 27/04/2023.

**TABLE 2: CURRENCY CONVERSION FACTORS FOR FOUR AFRICAN COUNTRIES AS AT 27/04/2023**

| CURRENCY | UNITS PER ZAR | ZAR PER UNIT |
|---|---|---|
| Malawian kwacha (MWK) | 56,211355 | 0,017790 |
| Kenyan shilling (KES) | 7,443462 | 0,134346 |
| Namibian dollar (NAD) | 1,000000 | 1,000000 |
| Zambian kwacha (ZMW) | 0,971016 | 1,029850 |

[Adapted from www.xe.com/currencyconverter]

Use TABLE 2 to answer the questions that follow.

1.3.1 Write down the country whose currency has the same value as the SA rand. (2)

1.3.2 Identify the currency that is stronger than the SA rand. (2)

1.3.3 Show how the Malawian kwacha of 0,017790 ZAR per unit was determined. (2)

1.4 TABLE 3 below shows data relating to the arrival, departure and transit of local and foreign travellers. This data was collected by the Department of Home Affairs at ports of entry and exit to and from South Africa for three selected months. A value (**P**) in this table has been omitted.

**TABLE 3: DATA RELATING TO NUMBER OF LOCAL AND FOREIGN TRAVELLERS**

| TRAVELLERS | NUMBER OF TRAVELLERS | | |
|---|---|---|---|
| | **February 2021** | **January 2022** | **February 2022** |
| **Local Travellers** | **131 693** | **399 936** | **359 686** |
| Arrivals | 64 943 | 221 890 | 173 089 |
| Departures | 66 694 | 177 890 | 186 410 |
| Transits | 56 | 156 | 187 |
| **Foreign Travellers** | **254 139** | **801 711** | **745 999** |
| Arrivals | 136 510 | 480 117 | 398 619 |
| Departures | 114 436 | 310 131 | 333 057 |
| Transits | 3 193 | 11 463 | 14 323 |
| **TOTAL TRAVELLERS** | **P** | **1 201 647** | **1 105 685** |

[Adapted from www.statssa.gov.za]

**NOTE:** 'Transit' refers to passengers who stay less than 24 hours at an airport on the way to their destination.

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

1.4.1 Write, in words without numerals, the total number of travellers for February 2022. (2)

1.4.2 Determine missing value **P**. (2)

1.4.3 Calculate the increase in the number of local travellers from February 2021 to February 2022. (2)

1.4.4 State the month and the year in which the highest number of foreign travellers were in transit. (2)
**[32]**

## QUESTION 2

2.1 Mr Warren Heyns received his Titanium credit card statement for his account at Standard Bank, dated 9 September 2023.

ANNEXURE A shows an adapted statement of Mr Warren Heyns' credit card account.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Write down the amount paid to Standard Bank by Mr Heyns during September 2023. (2)

2.1.2 Give ONE valid reason why some numbers have been omitted from the account number. (2)

2.1.3 Outstanding authorisations refer to purchases that must still be finalised.

Show, by means of calculations, how the amount of R8 323,78 for available money to spend was determined. (3)

2.1.4 The amount paid to Caltex on 12/08/2023 was for 54,1365 litres of petrol.

Calculate the price per litre of petrol on that particular day. (3)

2.1.5 The purchase at the Pro Shop on 24/08/2023 was for a Rovic RV2 golf push cart at a discounted price.

If a 17,5% discount was given on the price paid, calculate the original price of the Rovic RV2 golf push cart. (4)

2.2 The Bay Golf Club uses a golf course situated in England.

TABLE 4 below shows the actual and projected sources of income in pounds (£) of the Bay Golf Club based on previous trends in income for the years 2022 to 2026.

**TABLE 4: ACTUAL AND PROJECTED SOURCES OF INCOME (IN £) OF THE BAY GOLF CLUB**

| SOURCES OF INCOME | FINANCIAL YEAR | | | | |
|---|---|---|---|---|---|
| | **2022** | **2023** | **2024** | **2025** | **2026** |
| Membership fees | 223 027 | 245 202 | 257 460 | 270 333 | 284 000 |
| Green fees | 38 532 | 42 250 | 44 360 | 46 580 | 49 999 |
| Shop sales | 25 983 | 23 500 | **B** | 26 000 | 28 000 |
| Bar sales and functions | 95 209 | 100 000 | 103 000 | 106 000 | 110 000 |
| Lockers and buggy bays | 4 095 | 4 042 | 4 225 | 4 456 | 4 680 |
| Miscellaneous income | 2 107 | 2 500 | 2 500 | 2 500 | 2 500 |
| Grants | 7 500 | | | | |
| **Total income** | **396 453** | **417 494** | **...** | **455 869** | **479 179** |

[Adapted from (G&SBGC) Business Plan]

Use TABLE 4 to answer the questions that follow.

2.2.1 Identify the source of income that is expected to generate the second highest income across the years. (2)

2.2.2 The ratio of the income for shop sales for 2023 and 2024 is given as 47 : 49.

Determine missing value **B**. (4)

2.2.3 Calculate the percentage change in the total actual and projected sources of income from 2022 to 2025. (5)

2.2.4 According to the website statista.com the projected inflation rate for 2025 and 2026 will increase by 1,82% and 2% respectively.

A club member stated that if the membership fees increased according to the projected inflation, the difference between the projected inflation value for 2026 and the projected table value for 2026 will be £16 611,31.

Verify, with calculations, whether or not the club member's statement is VALID. (6)

**[31]**

## QUESTION 3

3.1 Staff at public schools are required to adhere to stipulated percentages or fractions relating to the total number of weekly periods based on their post level.

Table 5 below shows the stipulated teaching time per post level per school type.

**TABLE 5: STIPULATED TEACHING TIME PER POST LEVEL PER SCHOOL TYPE**

| STAFF | PRIMARY SCHOOL (PS) | SECONDARY SCHOOL (SS) |
|---|---|---|
| Post level 1 (teacher) | Between 85% and 92% | Between 85% and 90% |
| Post level 2 (departmental head) | Between 85% and 90% | 85% |
| Deputy principal | $\frac{3}{5}$ | $\frac{3}{5}$ |
| Principal | Between 10% and 92% | Between 5% and 60% |

[Adapted from www.gov.za]

Woodhill Senior Secondary School (SS) has a timetable with 40 periods per week. Shown below are the number of periods per week allocated to their staff members. The missing value, **D**, represents the number of periods taught by the deputy principal.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | **D** | 26 | 30 | 32 | 33 | 33 | 33 | 33 | 33 |
| 34 | 34 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 |
| 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | |

Moloto Primary School (PS) has a timetable with 37 periods per week. Shown below are the number of periods per week allocated to their staff.

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 23 | 25 | 27 | 27 | 29 | 29 |
| 29 | 29 | 30 | 30 | 30 | 30 | 30 |
| 31 | 31 | 31 | 32 | 32 | 32 | 34 |

[Adapted from www.asctimetables.com]

Use TABLE 5 and the information above to answer the questions that follow.

3.1.1 Determine the number of staff members at Woodhill SS. (2)

3.1.2 Write down the modal number of periods per week for Moloto PS. (2)

3.1.3 Calculate missing value **D**. (3)

3.1.4 Ina stated that since the calculated mean for Woodhill SS is 33, the median will be a better reflection of the average number of periods taught per staff member.

Justify Ina's statement with calculations. (3)

3.1.5 Determine, as a fraction, the probability of randomly selecting a staff member at Moloto PS who teaches 29 or more periods per week. (2)

3.2 TABLE 6A below shows the percentages achieved in Term 1 by ten selected learners of Woodhill SS for Task 1 and Task 2 in Mathematical Literacy.

**TABLE 6A: PERCENTAGES ACHIEVED BY TEN SELECTED LEARNERS**

| LEARNER | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| Task 1 | 71 | 79 | 80 | 68 | 63 | 53 | 71 | 22 | 76 | 84 |
| Task 2 | 53 | 69 | 53 | 49 | 50 | 47 | 61 | 15 | 47 | 81 |

[Adapted from original mark sheet]

On the ANSWER SHEET provided, the performances of Learners **A** to **J** for both tasks are plotted on a graph.

Use TABLE 6A and the graph on the ANSWER SHEET to answer the questions that follow.

3.2.1 (a) Name the type of graph shown on the ANSWER SHEET. (2)

(b) Calculate the range of the percentages achieved for Task 2. (3)

(c) Identify the learner whose marks for both tasks can be classified as an outlier. Give a reason for your answer. (4)

3.2.2 The school's subject policy states that the difference between the mean of the two tasks should be below 15%.

The mean for Task 1 is calculated as 66,7%.

A teacher claimed that the difference in the mean mark for both tasks falls within the school's subject policy.

Verify, showing ALL calculations, whether this teacher's claim is VALID. (5)

3.2.3 The achievements of two other selected learners, **K** and **L**, were added to TABLE 6A to create TABLE 6B.

**TABLE 6B: PERCENTAGES ACHIEVED BY TWELVE SELECTED LEARNERS**

| LEARNER | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task 1 | 71 | 79 | 80 | 68 | 63 | 53 | 71 | 22 | 76 | 84 | 68 | 88 |
| Task 2 | 53 | 69 | 53 | 49 | 50 | 47 | 61 | 15 | 47 | 81 | 40 | 64 |

Use the ANSWER SHEET provided (where performances of Learners **A** to **J** for both tasks are plotted) to plot the results of Learner **K** and Learner **L** for both tasks. Clearly label the plotted points, **K** and **L**. (4)

**[30]**

## QUESTION 4

4.1 The fundraising committee of St Mark's Anglican Church is planning a braai. At the braai, plates of food will be sold in order to raise funds for a new generator. Each plate of food will be sold for R35.

Each plate of food will consist of:

1 × chop
1 × boerewors
1 × salad and relish
1 × paper plate
1 × bread roll – no charge (sponsored)

They bought 16,7 kg of chops and 13 kg of boerewors at a local butcher enough for 200 plates of food.

The normal prices (per kg) of the meat products bought are given in TABLE 7 below.

**TABLE 7: NORMAL PRICE OF MEAT PRODUCTS PER KG**

| MEAT PRODUCTS | PICTURE | PRICE/kg |
|---|---|---|
| Chops |  | R149,95 |
| Boerewors |  | R99,99 |

[Adapted from www.fairfieldmeats.co.za]

The fundraising committee negotiated a discount of 15% with the butcher on the total purchase made.

Use TABLE 7 and the information above to answer the questions that follow.

4.1.1 Calculate the total amount the fundraising committee paid for the meat products at the local butcher. (7)

4.1.2 The cost of the salad, relish, paper plates and charcoal is an additional R850,00.

Calculate the cost price of ONE plate of food. (4)

4.1.3 The profit made from selling 200 plates of food was not sufficient.

The fundraising committee still had a shortfall of R2 850,00 to buy the new generator.

They decided to continue selling more plates of food to meet this shortfall.

Determine, rounded to the nearest TEN, the total number of plates of food they had to sell in order to buy the new generator. (6)

4.2 The fundraising committee wanted to design a poster targeted at a specific age group. They studied the estimated population distribution (as a percentage) per age group for the different race groups in South Africa.

The estimated total number of South Africans 15 years and older is 43 378 959.

ANNEXURE B shows a graph of the estimated population distribution (as a percentage) per age group for the different race groups in South Africa.

Use ANNEXURE B to answer the questions that follows.

4.2.1 Write down the probability (as a percentage) of randomly selecting a white person from the white population in the 65+ age group. (2)

4.2.2 It is given that the total number of people in the 55–64 age group is 4 052 572.

Give, rounded to THREE decimal places, the probability of randomly selecting a person in the 55–64 age group from the total number of South Africans, 15 years and older. (4)

4.2.3 Identify which age group the fundraising committee should target for this fundraising venture. Give a reason for your answer. (3)

**[26]**

## QUESTION 5

5.1 Malcolm, a 65-year-old consultant, earns an annual taxable income of R981 500 for the 2023/2024 tax year. He does not belong to a medical aid.

TABLE 8 below shows the tax table for the 2023/2024 tax year.
TABLE 9 shows the rebates for different tax ending years.

**TABLE 8: 2023/2024 TAX TABLE (1 MARCH 2023 TO 29 FEBRUARY 2024)**

| ANNUAL TAXABLE INCOME (R) | RATES OF TAX (R) |
|---|---|
| 1–237 100 | 18% of taxable income |
| 237 101–370 500 | 42 678 + 26% of taxable income above 237 100 |
| 370 501–512 800 | 77 362 + 31% of taxable income above 370 500 |
| 512 801–673 000 | 121 475 + 36% of taxable income above 512 800 |
| 673 001–857 900 | 179 147 + 39% of taxable income above 673 000 |
| 857 901–1 817 000 | 251 258 + 41% of taxable income above 857 900 |
| 1 817 001 and above | 644 489 + 45% of taxable income above 1 817 000 |

**TABLE 9: REBATES FOR DIFFERENT TAX ENDING YEARS**

| AGE OF PERSON | REBATE FOR YEAR ENDING LAST DAY OF FEBRUARY | | | | |
|---|---|---|---|---|---|
| | 2024 | 2023 | 2022 | 2021 | 2020 |
| Person younger than 65 | R17 235 | R16 425 | R15 714 | R14 958 | R14 220 |
| Person 65 and older | R9 444 | R9 000 | R8 613 | R8 199 | R7 794 |
| Person 75 and older | R3 145 | R2 997 | R2 871 | R2 736 | R2 601 |

[Adapted from www.sars.gov.za]

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

5.1.1 State the total number of rebates Malcolm qualifies for. (2)

5.1.2 Calculate Malcolm's monthly tax payable. (7)

5.2 Malcolm is planning to buy a motor vehicle. The cash price of the motor vehicle is R334 000. He considers the following payment options to finance this motor vehicle to the value of R300 000.

OPTION 1: Motor vehicle loan without a residual (balloon payment)
OPTION 2: Motor vehicle loan with a 20% residual (balloon payment)
The balloon payment will be the 73rd payment.
OPTION 3: Personal loan from a bank

TABLE 10 below shows the different motor vehicle payment options.

**TABLE 10: MOTOR VEHICLE PAYMENT OPTIONS**

| | OPTION 1 | OPTION 2 | OPTION 3 |
|---|---|---|---|
| Interest rate | 13% | 13% | 17,5% |
| Monthly instalment | R6 115,47 | R5 498,19 | R6 864,00 |
| Balance outstanding at the end of 72 months | R0 | 20% of loan value | R0 |
| Cost of loan | **X** | R156 494,00 | R194 208 |
| Total payable | R440 313,84 | **Y** | R494 208,00 |
| Loan period | 6 years | 73 months | 6 years |

[Adapted from www.wesbank.co.za]

Use TABLE 10 and the information above to answer the questions that follow.

5.2.1 Define the term *interest rate* in context. (2)

5.2.2 Determine the difference between the monthly instalments of Option 1 and Option 2. (2)

5.2.3 Calculate missing value **X**.

You may use the formula:

**Cost of loan = Instalments × number of months – loan value** (3)

5.2.4 Determine missing value **Y**.

You may use the formula:

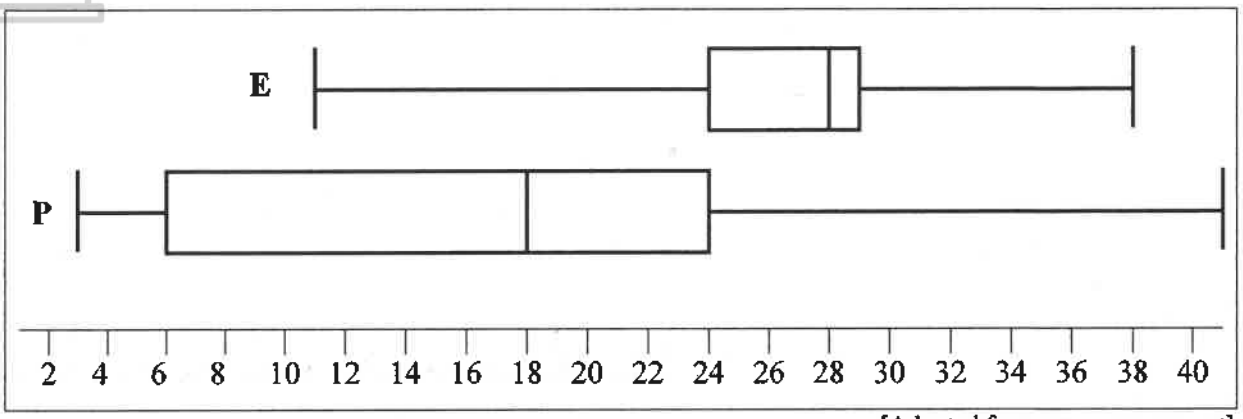
**Total payable = Instalments × number of months + balloon payment** (5)

5.2.5 Give ONE reason why banks charge more interest on a personal loan compared to a motor vehicle loan. (2)

5.3 Malcolm also studies the trends in the sales of hybrid vehicles.

The following box and whisker plots summarise the percentage sales of the electrical vehicles (**E**) and plug-in hybrid vehicles (**P**) in South Africa.

The following box and whisker plots for the sales of the two types of vehicles were drawn.




[Adapted from www.naamsa.net]

**NOTE:** A hybrid vehicle is one that uses two or more distinct types of power: either an internal combustion engine or an electric motor powered by batteries.

Use the box and whisker plots above to answer the questions that follow.

5.3.1 Write down the value of the lower quartile for the electrical vehicle (**E**) sales. (2)

5.3.2 An analyst stated that the interquartile range for the electrical vehicles was a quarter of the interquartile range of the plug-in hybrid vehicles.

Verify, showing ALL calculations, whether or not the analyst's statement was VALID. (6)

**[31]**

**TOTAL: 150**

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| CENTRE NUMBER: | | | | | | | |
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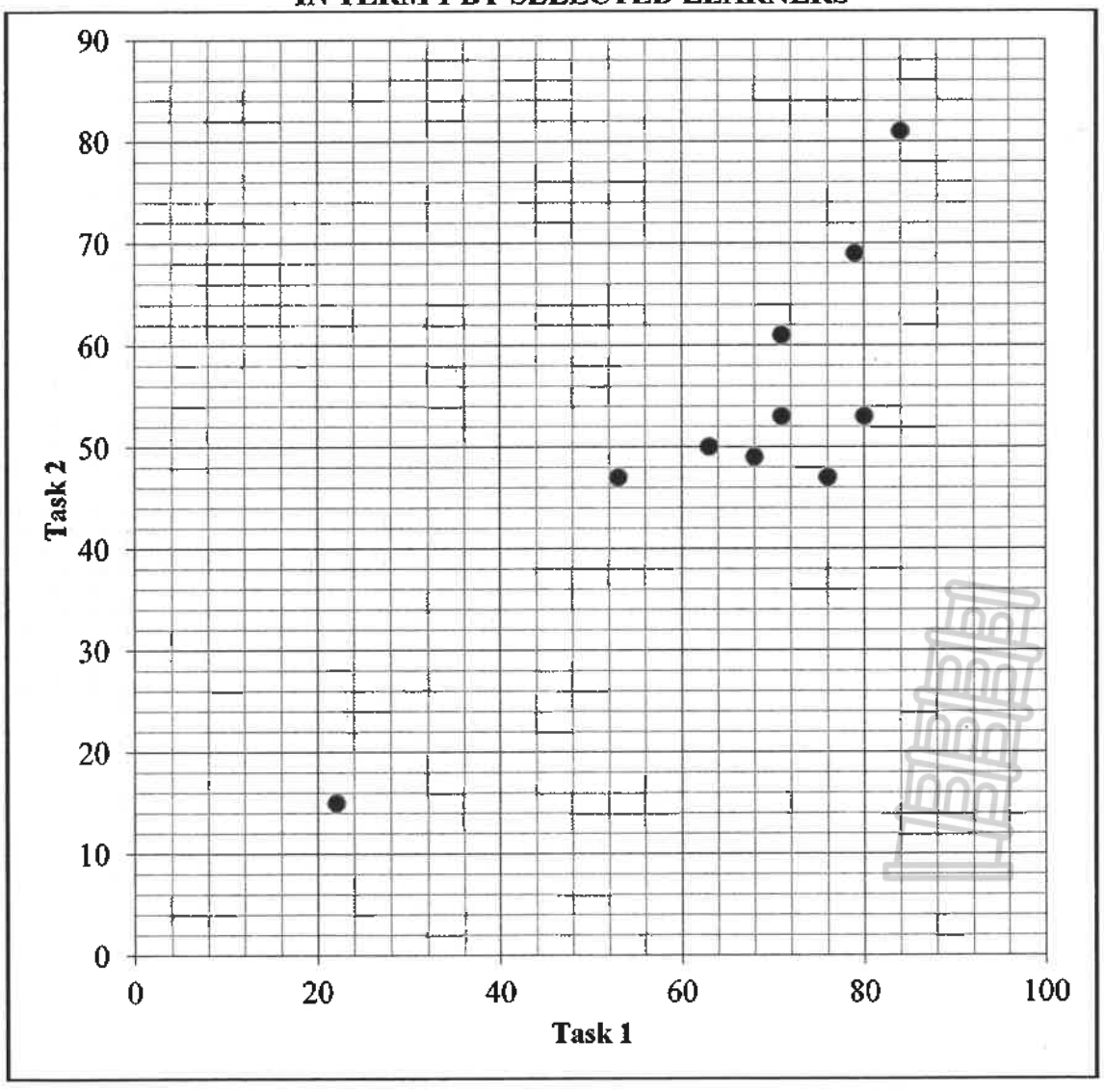
**ANSWER SHEET**

**QUESTION 3.2**

**TABLE 6B: PERCENTAGES ACHIEVED BY TWELVE SELECTED LEARNERS**

| LEARNER | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task 1 | 71 | 79 | 80 | 68 | 63 | 53 | 71 | 22 | 76 | 84 | 68 | 88 |
| Task 2 | 53 | 69 | 53 | 49 | 50 | 47 | 61 | 15 | 47 | 81 | 40 | 64 |

**PERCENTAGES ACHIEVED FOR TASK 1 AND TASK 2 IN TERM 1 BY SELECTED LEARNERS**




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# SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

## MATHEMATICAL LITERACY P1

## ADDENDUM

## MAY/JUNE 2024

**This addendum consists of 3 pages with 2 annexures.**

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**ANNEXURE A**

**QUESTION 2.1**

**Standard Bank** **Titanium Credit Card**

MR W HEYNS
4 BEND STREET
GQEBERHA
6020

**Statement details**
Page 1 of 1
Statement Date: 9 Sep. 2023

## Tax Invoice

**Transaction details** **Account 2593 **** **** 6582**

| Date | Description | Amount |
|---|---|---|
| 10/8/23 | Balance Brought Forward | **606,36** |
| **Credits** | | |
| 6/9/23 | Payment, Thank You | –2 000,00 |
| **Debit** | | |
| 12/8/23 | Caltex | 1 376,15 |
| 14/8/23 | Oranje Meganies | 1 450,00 |
| 24/8/23 | Pro Shop – Rovic RV2 Golf Push Cart | 3 299,99 |
| 27/8/23 | Bossa Cafe Soneike | 384,00 |
| 28/8/23 | Checkers Zevenwacht | 177,64 |
| 1/9/23 | Ucount Fee | 25,00 |
| 7/9/23 | Last Minute | 160,00 |
| 8/9/23 | C* Yoco *Koek | 55,00 |
| 9/9/23 | Credit Protection Policy | 40,08 |
| 9/9/23 | # Card Fee | 42,00 |
| 9/9/23 | # Service Fee | 40,00 |
| | **Closing balance** | **5 656,22** |

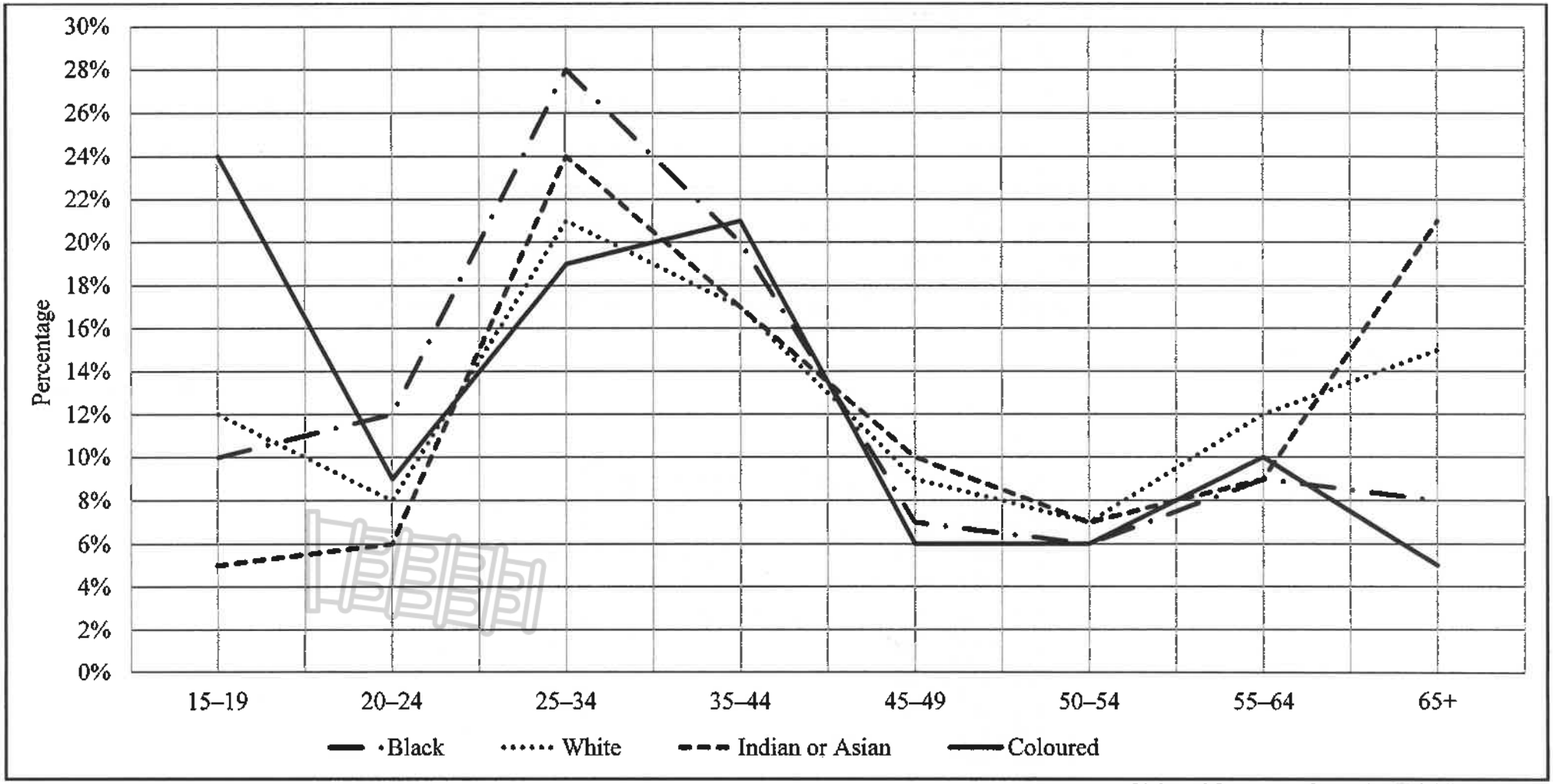
| **STATEMENT SUMMARY ON: TITANIUM CREDIT CARD ACC. 2593 **** **** 6582** | |
|---|---|
| **Payment Information** | |
| Total amount owing on this statement | 5 656,22 |
| **Minimum payment due** | **169,68** |
| **Payment due date** | 4 Oct 2023 |
| **Credit:** | |
| Credit limit | 20 000,00 |
| Outstanding authorisations on revolving account | 6 020,00 |
| Available money to spend | 8 323,78 |

[Adapted from original credit card statement]

**ANNEXURE B**

**QUESTION 4.2**

**ESTIMATED POPULATION DISTRIBUTION (AS A PERCENTAGE) PER AGE GROUP FOR THE DIFFERENT RACE GROUPS IN SOUTH AFRICA**




[Adapted from www.fact-a-day@eighty20.co.za]

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