education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 12

MATHEMATICAL LITERACY P1

JUNE 2024

MARKS: 100

TIME: 2 hours

This question paper consists of 10 pages, 2 annexures and 1 answer sheet.

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INSTRUCTIONS AND INFORMATION

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

2. Use the ANNEXURES and ANSWER SHEET to answer the following questions.

   ANNEXURE A for QUESTION 2.1
   ANNEXURE B for QUESTION 2.2
   ANSWER SHEET for QUESTION 2.3.2

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 Lebogang compared prices of three different stores during the Black Friday 2023 special.

TABLE 1 below shows the prices at three different stores.

TABLE 1: THE COST OF GROCERY ITEMS AT THREE DIFFERENT STORES.

ITEMS	STORE A	STORE B	STORE C
1 ℓ Vanilla Custard	5 for R99,00	R20,00	R18,00
2 ℓ Cooking oil	3 for R200,00	2 for R120,00	R79,00
500 g Rama	6 for R99,00	2 for R49,00	R15,00
410 g baked beans	3 for R30,00	5 for R64,00	R10,00
750 g Cremora	R49,00	2 for R80,00	R35,00
2 kg Rice	3 for R60,00	3 for R60,00	R20,00
2 ℓ Oros	R32,00	R36,00	R30,00

[Adapted from Pinterest, 2023]

Use TABLE 1 above to answer the questions that follow.

1.1.1 Identify whether the prices given in TABLE 1 are categorical or numerical data. (2)

1.1.2 Arrange the prices for store C in ascending order. (2)

1.1.3 Name the store with the highest price for 2 ℓ Oros. (2)

1.1.4 Determine as a unit ratio, in the form 1 : …, the 1 ℓ vanilla custard price at Store B to the 1 ℓ vanilla custard price at store C. (3)

1.1.5 Calculate the price of ONE 410 g baked beans at Store B. (2)

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1.2

Mr Moeng contributes a regular monthly amount from his salary towards his pension fund. This amount is deducted from his salary through stop order on the 15th day of each month.

TABLE 2 below shows an extract of the estimated benefit from Government Employees Pension Fund.

TABLE 2: ESTIMATE OF BENEFITS AS AT 30 AUGUST 2023

Name and surname	Ditiro Moeng
First date of contribution into the fund	15/01/1998
Number of years contributing into the fund	25 years 8 months
Current annual salary	R490 312
Lump sum payable during retirement	R1 186 999
Lump sum payable to beneficiaries	R2 396,76
Resignation benefits	R2 660 582

[Adapted from Government Employee Pension Fund estimated benefit, 2023]

Use TABLE 2 above to answer the questions that follow.

1.2.1 Give the acronym for Government Employees Pension Fund. (2)

1.2.2 Define the term *stop order*. (2)

1.2.3 Write down the resignation benefits amount in words without using numerals. (2)

1.2.4 Round off Mr Moeng's current annual salary to the nearest thousand. (2)

[19]

QUESTION 2

2.1 ANNEXURE A shows an extract from Mr Ditiro's monthly municipal statement including stepped residential water tariffs and fixed rates.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Calculate the missing value of **A**, the previous reading. (3)

2.1.2 Mr Ditiro states that his total water charge (excluding VAT) is R1 434,53 when using the stepped residential water tariffs and fixed rates.

Verify, showing ALL calculations, whether his statement is valid. (6)

2.2 ANNEXURE B shows Mr Ditiro's home loan statement from ABC Bank. The monthly administration fee remains constant throughout the period of the loan.

Use ANNEXURE B to answer the questions that follow.

2.2.1 Write down the date on which the home loan was registered. (2)

2.2.2 The fixed monthly administration fee of R69,00 includes VAT.

Calculate VAT amount that is included in the monthly administration fee. (3)

2.2.3 Calculate the administration fee (including VAT) payable for the whole loan period. (3)

2.2.4 Calculate the total amount of money that Mr Ditiro will pay back to the bank.

You may use the formula:

Total amount = monthly instalment × number of months (3)

2.2.5 Mr Ditiro paid more money towards his loan when compared to the agreed monthly instalment.

Calculate the extra total payment for the period shown in his home loan statement. (5)

2.2.6 Mr Ditiro receives an electronic copy of his statement every month which is opened only by using his identity number.

Give ONE reason for using an identity number to open the home loan statement. (2)

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2.3 Aihan wants to start her own business, specialising with one of her favourite Chinese dishes, Chow Mein. Her variable cost to make one plate of Chow Mein is R15,00 and her fixed cost is R750,00. The selling price of one plate is R30,00.

TABLE 3 shows the income and cost from the sale of Chow Mein.

TABLE 3: INCOME AND COST OF SELLING CHOW MEIN PLATES

Number of plates	0	10	30	40	70	90	100
Income (R)	0	300	900	1 200	2 100	2 700	3 000
Cost (R)	750	900	1 200	1350	1 800	2 100	2 250

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

2.3.1 Determine the number of plates sold if the total cost was R1 950,00.

You may use the formula:

Total Cost = R750 + 15 p
where **p** = number of plates. (4)

2.3.2 The income graph has already been drawn on the attached ANSWER SHEET.

Use TABLE 3 and the same grid on the ANSWER SHEET to draw another line graph representing the cost for making different plates of Chow Mein. (3)

2.3.3 Determine the number of Chow Mein plates at the break-even point. (2)
[36]

QUESTION 3

3.1 TABLE 4 shows Mathematical Literacy overall performance rates for candidates who wrote the National Senior Certificate Examinations in South Africa for a period of 2016 to 2023.

TABLE 4: OVERALL PERFORMANCE IN MATHEMATICAL LITERACY

Year	Number Wrote	Number performed below 30%	Number performed at 30% and above	% performed at 30% and above	Number performed at 40% and above	% performed 40% and above
2016	361 948	104 022	257 926	71,3	167 811	46,4
2017	313 030	81 800	231 230	73,9	140 991	45,0
2018	294 204	62 979	213 225	72,5	133 568	45,4
2019	298 607	57 791	240 816	80,6	**B**	**A**
2020	341 363	83 679	257 684	80,8	197 131	57,7
2021	441 067	112 685	328 382	74,5	216 692	49,1
2022	450 005	64 490	385 515	85,7	271 830	60,4
2023	421 835	74 608	347 227	82,3	239 045	56,7

[Adapted from National diagnostic reports 2022 & 2023]

Use TABLE 4 above to answer the questions that follow.

3.1 Define the term *mode*. (2)

3.2 Calculate the median number of candidates who wrote over the period shown. (4)

3.3 Calculate the range of percentage performed at 30% and above over the period shown. (3)

3.4 Calculate the percentage decrease for the number of candidates who wrote between 2022 and 2023. (3)

You may use the formula:

$$\textbf{\% decrease} = \frac{\textbf{number wrote in 2023} - \textbf{number wrote in 2022}}{\textbf{number wrote in 2022}} \times 100\%$$

3.5 Calculate the missing value of **A** if the mean percentage over the period shown above is 51,9%. (4)

3.6 Comment on the trend of the percentage performed at 40% and above from 2020 to 2023. (3)

3.7 Determine the probability, as a decimal, of randomly selecting the number of candidates who performed below 30% in 2018. (3)

[22]

QUESTION 4

4.1 Siyabonga who is a 65 year old, earn an annual taxable income of R120 278,00 for the 2023/2024 tax year. He is not a member of any medical aid fund.

TABLE 5 below shows the tax table for the year 2023/24 tax year.

TABLE 5: 2023/2024 TAX YEAR (1 March 2023 – 28 February 2024)

	TAXABLE INCOME (R)	RATES OF TAX (R)
1	1 – 237 100	18% of taxable income
2	237 101 – 370 500	42 678 + 26% of taxable income above 237 500
3	370 501 – 512 800	77 362 + 31% of taxable income above 370 500
4	512 801 – 673 000	121 475 + 36% of taxable income above 512 800
5	673 001 – 857 900	179 147 + 39% of taxable income above 673 000
6	857 901 – 1 817 000	251 258 + 41% of taxable income above 857 900
7	1 817 001 and above	644 489 + 45% of taxable income above 1 817 000

TABLE 6 below show the tax rebates for the year 2023/24 tax year.

TABLE 6 : TAX REBATES FOR THE YEAR 2023/24 TAX YEAR

TAX REBATES	
Primary (Below age 65)	R17 235,00
Secondary (Age 65 to below 75)	R9 444,00
Tertiary (Age 75 and over)	R 3 145,00

[From http://www.sars.gov.za]

Use TABLE 5 and TABLE 6 above to answer the questions that follow.

4.1.1 Identify which tax bracket Siyabonga falls in, based on his taxable income. (2)

4.1.2 Siyabonga claims that he should NOT be paying any income tax.

Verify, showing ALL calculations, whether his claim is valid. (6)

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4.2 Siyabonga's son, Lunga, attended the Expo for Young Scientists in China. He exchanged R2 600,00 for Chinese Yuan.

The exchange rate between South African rands and Chinese Yuan on 12 March 2024 is given in TABLE 7 below.

TABLE 7: EXCHANGE RATE

SOUTH AFRICA RAND (ZAR)	CHINESE YUAN (CN¥)
1	0,39
2,564102564	1

[From http//www.x-ratess.com]

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

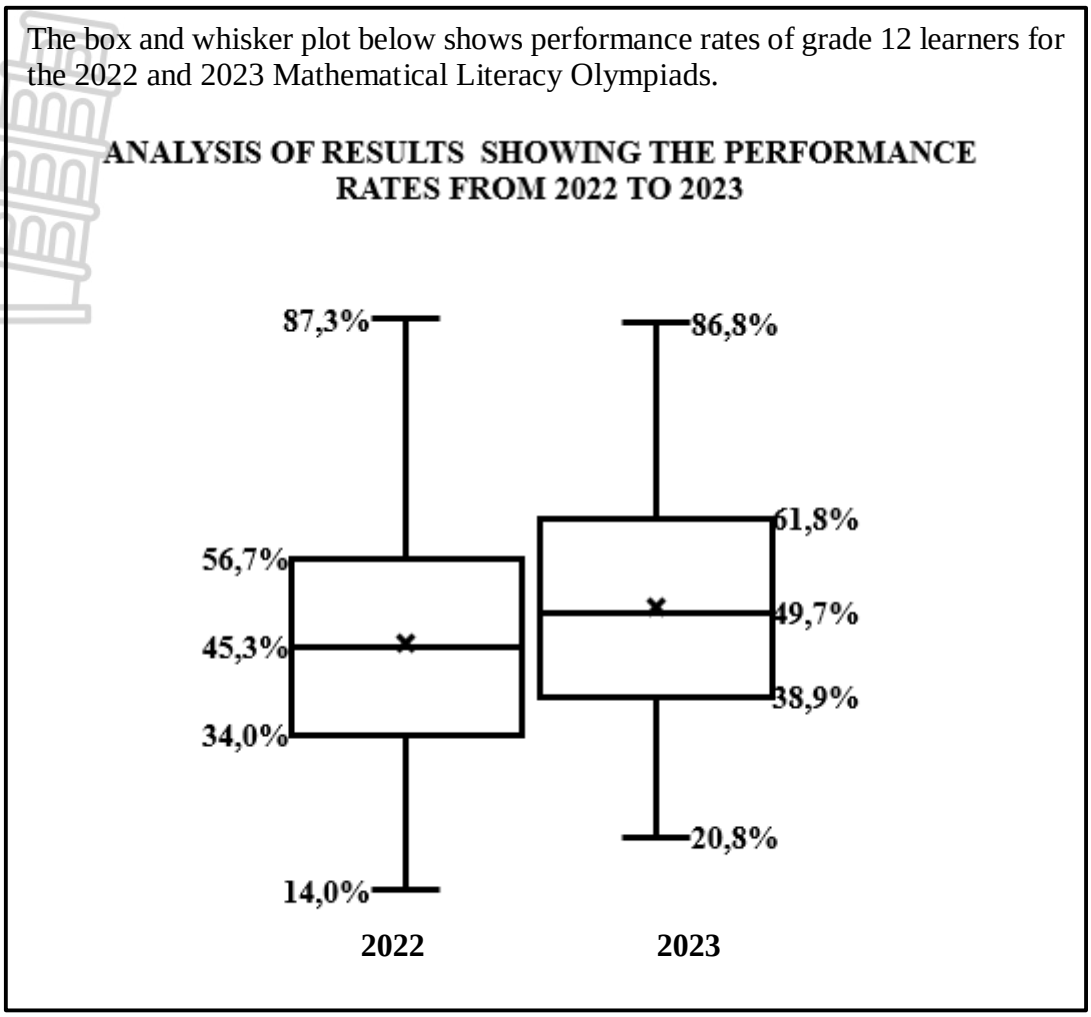
4.2.1 Calculate the amount Lunga received in Chinese Yuan (CN¥). (2)

4.2.2 Lunga did not spend all his money and decided to invest R550,00 in a fixed deposit account for 2 years at a compound interest rate of 9,5% per annum.

Calculate, without the use of a formula, the value of the fixed deposit at the end of 2 years.

Showing ALL the steps of the calculations. (5)

4.3 The box and whisker plot below shows performance rates of grade 12 learners for the 2022 and 2023 Mathematical Literacy Olympiads.



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

4.3.1 Write down the percentage of learners who performed below the 61,8% percentile. (2)

4.3.2 Calculate the interquartile range (IQR) of the performance rate in 2022. (4)

4.3.3 Give ONE reason why the performance rate was higher in 2023. (2)

[23]

TOTAL: 100

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ANNEXURE A

QUESTION 2.1

EXRACT FROM MR DITIRO'S MUNICIPAL STATEMENT

Mr Ditiro Alberton 1450	Account No : 0000000957 Statement date : 25/10/2023

Meter number	Previous reading (kℓ)	Recent Reading (kℓ)	Consumption / Water usage (kℓ)	Reading date
206	**A**	9 273	24	25/09/2023

STEPPED RESIDENTIAL WATER TARIFF	
KILOLITRES PER MONTH	**TARIFF R/kℓ**
from 0 to 6	R18,12
More than 6 to 15	R29,86
More than 15 to 30	R36,58
More 30 to 45	R45,52
above 46 or more	R56,12

FIXED RATES PER MONTH	
TARIFF SUMMARY	**TARIFF 2023/24**
Consumption less than or equals to 6 kℓ	R0,00
Consumption exceeding 6 kℓ but less than or equal to 15 kℓ	R179,18
Consumption exceeding 15 kℓ but less than or equal to 30 kℓ	R727,85
Consumption exceeding 30 kℓ	R1 410,40

[Adapted from www.ekurhulemi.gov.za]

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ANNEXURE B

QUESTION 2.2

QUARTERLY HOME LOAN STATEMENT FROM ABC BANK.

Mr Ditiro P.O Box 125 Mafikeng 2740	132 Rivonia Road Sandton 2196 Tel : 0800 555 000 www.abcbank.co.za
Cell : *** *** 1294 Bond number : 8230111287 Statement date :2023/11/30	

Total loan amount R145 500,00			Balance outstanding R81 371,11		
Installment	R1 862,06		Registration date		25/02/2016
Interest rate	12,40%		Registered amount		R145 500 ,00
Loan term	240 months				

Date	Transaction	Debit (R)	Credit (R)	Balance (R)
01/09/2023	Balance brought forward			93 653,73
01/09/2023	Interest	1 001,23	0,00	94 654,96
02/09/2023	Insurance	236,15	0,00	94 891,11
15/09/2023	Payment	0,00	2 300,00	92 591,11
30/09/2023	Administration fee (Including 15% VAT)	69,00	0,00	92 660,11
01/10/2023	Interest	954,55	0,00	93 614,66
02/10/2023	Insurance	236,15	0,00	93 850,81
13/10/2023	Payment	0,00	2 300,00	91 550,81
31/10/2023	Administration fee (Including 15% VAT)	69,00	0,00	91 619,81
01/11/2023	Interest	908,94	0,00	92 528,75
02/11/2023	Insurance	250,25	0,00	92 779,00
15/11/2023	Payment	0,00	2 300,00	90 479,00

[Adapted from Nedbank home loan statement,2023]

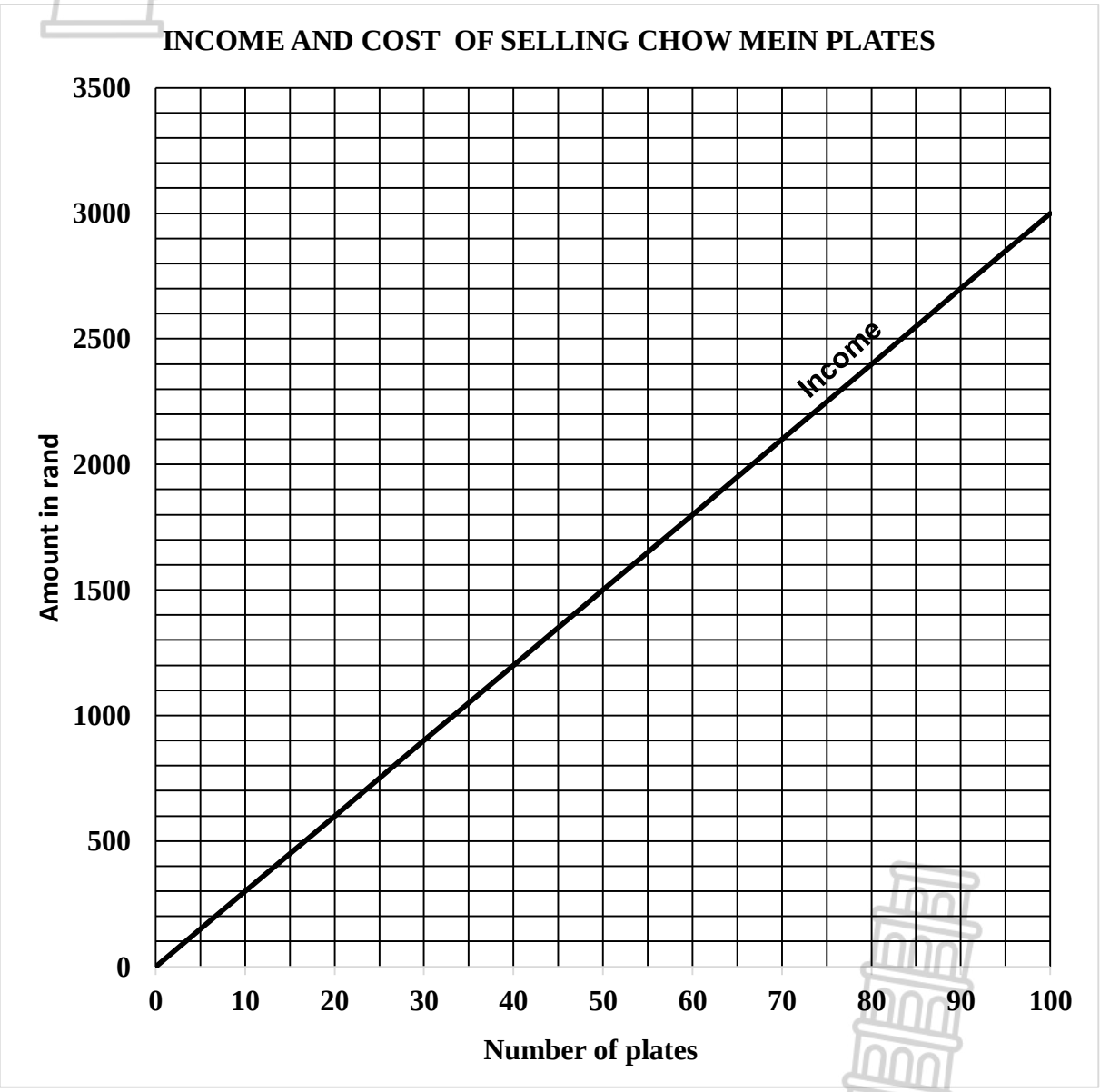
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ANSWER SHEET

QUESTION 2.3.2

NAME : _____

GRADE :_____



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