GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

JUNE EXAMINATION
GRADE 12

2023

MATHEMATICAL LITERACY

(PAPER 1)

TIME: **2 hours**

MARKS: **100**

9 pages and an addendum of 3 pages

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Use the ADDENDUM as follows:

   Use ANNEXURE A for QUESTION 2.1
   Use ANNEXURE B for QUESTION 4.3
3. Number your answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
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. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

1.1 Use the information below and VAT at the percentage (%) prescribed by the South African Revenue Service to answer the questions that follow.



'mens sana in corpore sano'

'A healthy mind in a healthy body'



South African schools' tuck shops are encouraged to sell fruit and other healthy products during breaks. TABLE 1 below shows some facts relating to Krugersdorp High School (KHS) tuck shop which sells fruit at school during breaks and lunch times.

TABLE 1: KHS TUCK SHOP'S SALES

80 apples per box	Cost of one apple	Selling price of one apple	Profit on one apple
7 boxes sold daily	R 1, 40 VAT inclusive	R2,00 VAT inclusive	**A**

1.1.1 What does the acronym VAT represent and at what percentage is VAT calculated by the South African Revenue Service? (4)

1.1.2 Explain the meaning of a *VAT inclusive price*. (2)

1.1.3 Determine the value of **A**, the profit on one apple. (2)

1.1.4 Calculate the percentage profit that KHS's tuck shop makes on ONE apple.

Use the following formula:

$$\%\ Profit\ = \frac{selling\ price\ -\ cost\ price}{cost\ price} \times\ 100\ \%$$

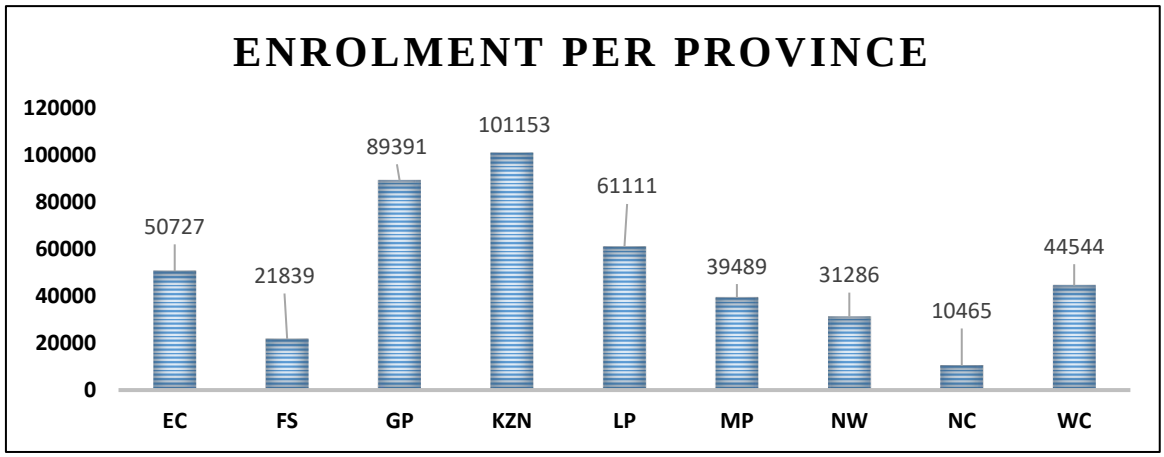
(2)

1.1.5 Calculate KHS's tuck shop's daily profit from the sale of apples. (2)

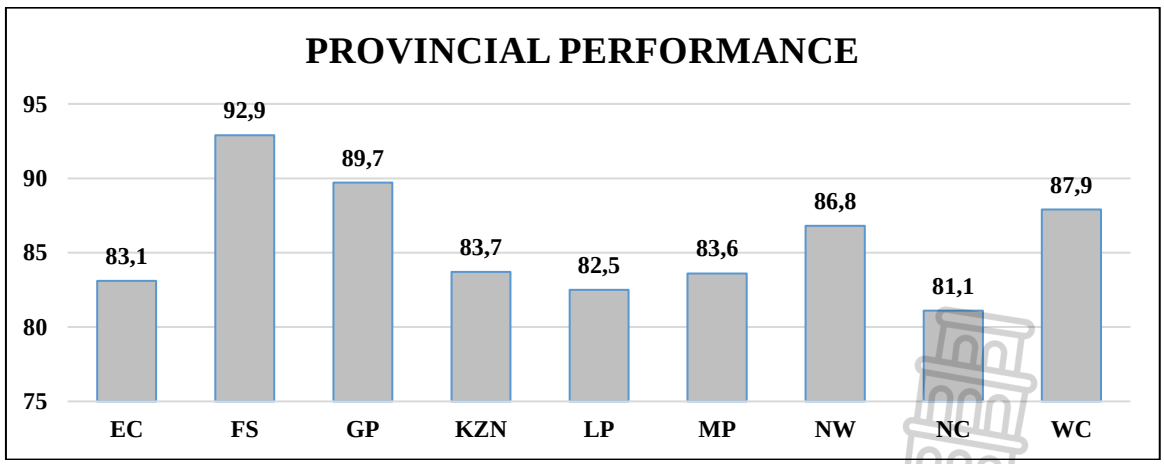
1.2 The year 2022 was a challenging one for matric candidates due to the COVID-19 pandemic which they had faced during 2020 and 2021.

Graph 1 below shows the enrolment of the 2022 candidates who wrote the National Senior Certificate Examination in each province. Graph 2 below shows the pass percentage per province in 2022.

GRAPH 1: NUMBER OF CANDIDATES PER PROVINCE



GRAPH 2: PASS PERCENTAGE PER PROVINCE



1.2.1 Why is the above information represented by a bar graph instead of a histogram? (4)

1.2.2 Calculate the total number of candidates who wrote the 2022 National Senior Certificate Examinations. Write your answer in words. (4)

1.2.3 Which province has the second highest number of candidates and has also achieved the second highest pass percentage in performance? (2)

1.2.4 How many candidates failed the National Senior Certificate examination in KwaZulu-Natal (KZ-N) in 2022? (3)

[25]

QUESTION 2

2.1 Individuals and companies with bank accounts are allowed to request statements on their accounts, mostly weekly, monthly, and quarterly.

TEBA Bank Savings Account Statement for the period 09/09/2022 to 16/09/2022 is shown in ANNEXURE A.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Write down the account number and name of the account holder. (4)

2.1.2 Determine the total number of transactions made on this account. (2)

2.1.3 Determine the probability of choosing a transaction made on 15/09/2022. (2)

2.1.4 Calculate the total amount of all four TUIB transactions made on this account. (2)

2.1.5 The account holder owed the bank a certain amount on a particular day. Identify the amount that the account holder owed the bank. (2)

2.1.6 Calculate the total amount deposited into this account during the period of the statement. (2)

2.1.7 What percentage of the total amount deposited into this account was paid towards the Westbank Bond? (3)

2.1.8 Calculate the Pre-Paid Water fee on 16/09/2022. (2)

2.2 Merafong municipality encourages its residence to use water sparingly.
Mr. Dromedaries tries to minimise his usage of municipal water and plans to install a wall water tank to collect rainwater. Study the quotation below and answer the questions that follow.



Quotation for installing water tank

WESTONARIA PLUMBING PROJECTS PTY (LTD)
3233 President Street
Westonaria

ITEM	PRICE PER UNIT
Wall tank	R6 479,00
Extra equipment and material	R971,85
Labour per hour or part thereof	R64,99

Mr Dromedaries found out that the installation will take 2 hours 35 minutes on the first day and 1 hour 54 minutes on the second day.

Mr Dromedaris has a total budget of R7 800 to buy and install the water tank.

Verify, using calculations, whether his budget will be sufficient. (6)
[25]

QUESTION 3

The Gauteng Department of Education bought scientific calculators for all its education districts. The distribution of calculators among these districts is represented in the table below.

TABLE 2: NUMBER OF CALCULATORS DISTRIBUTED

	NUMBER OF CALCULATORS				
	Further Education and Training			**Senior Phase**	
Grade	**10**	**11**	**12**	**8**	**9**
Districts					
Ekurhuleni North	9 000	8 000	7 852	11 670	10 340
Ekurhuleni South	12 000	11 200	10 080	15 622	14 323
Gauteng East	7 000	6 500	6 365	9 760	8 876
Gauteng North	3 000	2 000	1 645	5 290	4 449
Gauteng West	7 000	6 500	6 374	9 230	8 100
Johannesburg Central	8 000	7 000	6 930	10 000	9 568
Johannesburg East	6 000	5 900	5 873	8 950	7 772
Johannesburg North	6 000	5 800	5 773	8 050	7 500
Johannesburg South	6 000	5 900	5 815	8 100	7 679
Johannesburg West	5 000	4 800	4 561	7 200	6 923
Sedibeng East	3 000	2 700	2 463	5 238	4 576
Sedibeng West	6 000	5 000	4 899	8 690	7 640
Tshwane North	7 000	6 800	6 562	9 800	8 823
Tshwane South	9 000	8 500	8 246	11 200	10 060
Tshwane West	7 000	6 000	5 953	9 067	8 990

3.1 How many education districts received calculators? (2)

3.2 Determine the total number of calculators bought by the Gauteng Department of Education for Grade 9 learners. (2)

3.3 Name the district that was allocated the THIRD LOWEST number of calculators for Grade 12 learners. (2)

3.4 Is the data represented in TABLE 2 above continuous or discrete? Explain your answer. (4)

3.5 Determine the mean number of calculators bought for the Grade 10 learners in only the Johannesburg Districts. (3)

3.6 Use the "Number of calculators" column for Grade 11 and answer the following questions.

(a) Determine the first quartile and third quartile. Thereafter, subtract quartile 1 from quartile 3. What is the answer? (6)

(b) Name the concept calculated in QUESTION 3.6 (a). (2)

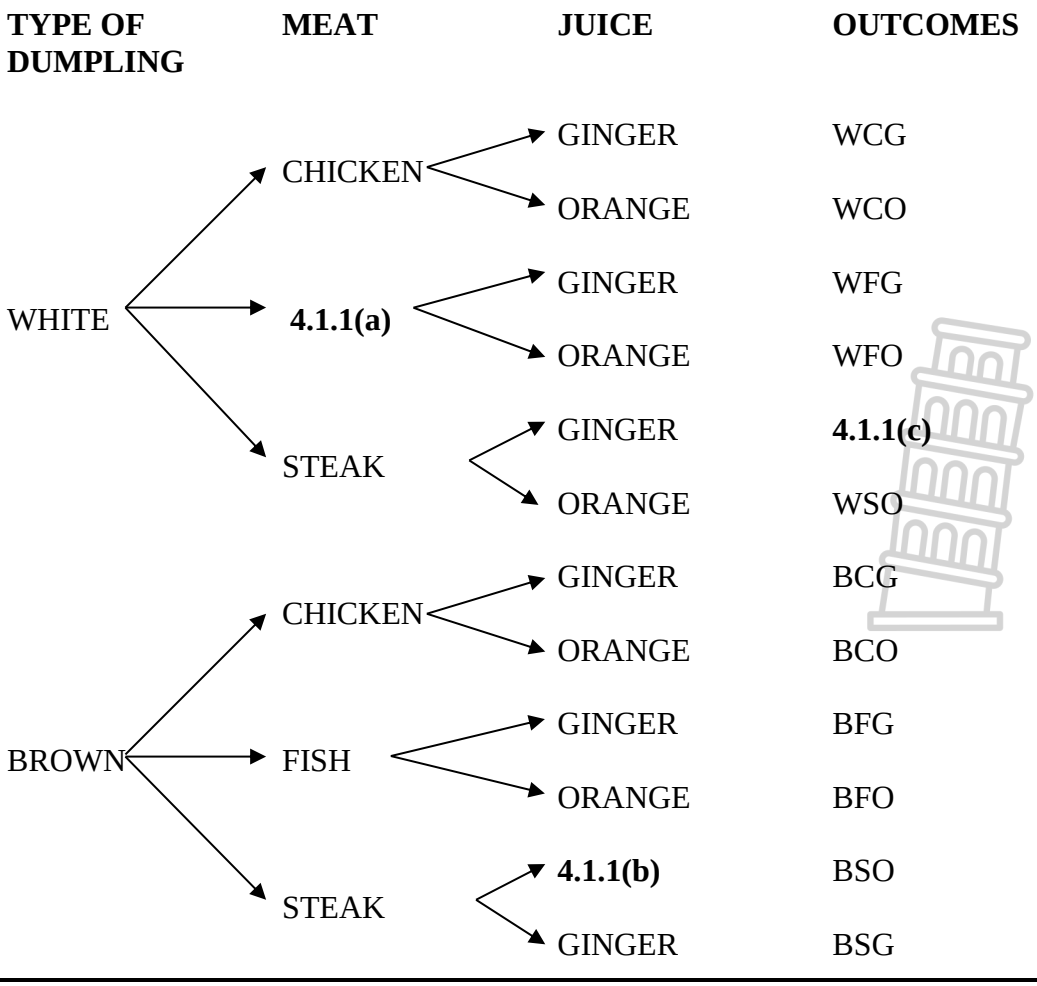
[21]

QUESTION 4

4.1 Mr Shishenga rewards the top 10 Grade 12 learners every term by taking them to different restaurants. Sakhumzi restaurant offers a special dumpling combo with fruit juice for R60,00.

The dumpling dough can be either white (W) or brown (B). The meat filling can be chicken (C), fish (F) or steak (S). The juice choice is ginger (G) or orange (O).

The tree diagram below represents the different choices for this special offer.



Use the information above to answer the questions that follow.

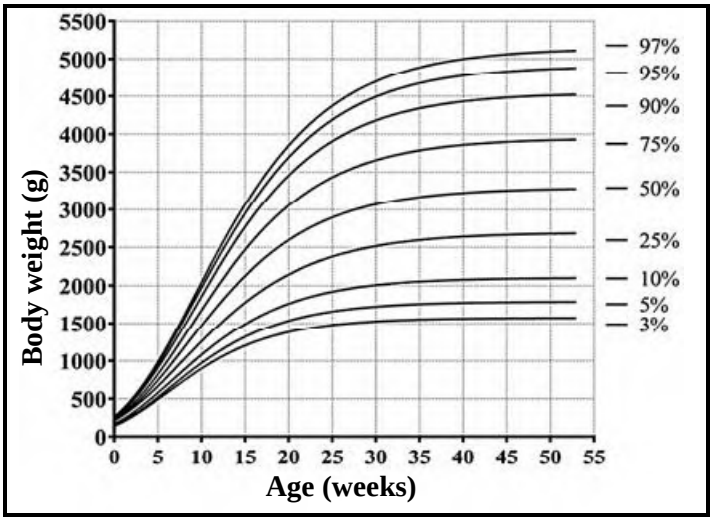
4.1.1 Write down the missing information for 4.1.1(a), 4.1.1(b) and 4.1.1(c). (3)

4.1.2 Determine how many different combinations from which a person has to choose. (2)

4.1.3 Write down the probability of randomly choosing a combination that will have steak as the meat and ginger juice as the beverage. (2)

4.2 Mr Areef is a professional horse breeder. He is highly concerned that his foals (baby horses) might not run as fast as possible due to being overweight. Below is the growth chart for the foals.

GROWTH CHART FOR FOALS



Use the information on the growth chart to answer the following questions.

4.2.1 Determine the weight of a 30-week-old foal that is in the 25th percentile. (2)

4.2.2 Explain what it means if a foal's weight is classified in the 75th percentile. (2)

4.2.3 Mr Areef's foal is 40 weeks old. Write its age in months if there are 4 weeks in a month. (2)

4.2.4 One of Mr Areef's foals weighs 4,5 kg at 45 weeks.

(a) Determine in which percentile its age-weight ratio is. (2)
(b) Give advice to Mr Areef with regard to his foal's weight. (2)

4.3 Mr Shishenga, a 50-year-old Mathematical Literacy educator at Ekurhuleni North High School, earned a monthly taxable income of R35 357,00 during the 2021/22 tax year. During this time, Mr Shishenga was a member of a medical fund for himself, his wife and his two children.

ANNEXURE B shows the tax table for the 2021/22 tax year. Use the TAX TABLE in ANNEXURE B to answer the questions that follow.

4.3.1 Determine Mr Shishenga's annual taxable income. (2)

4.3.2 Show, with calculations, that Mr Shishenga will receive R13 344 in medical tax credits for the 2021/22 tax year. (4)

4.3.3 Calculate the amount of tax Mr Shishenga must pay for the 2021/22 tax year. (6)
[29]

TOTAL: 100

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ADDENDUM

3 pages

ANNEXURE A

QUESTION 2.1

TEBA BANK	**TEBA Bank** **Savings Account Statement** **From:** 09/09/2022 **To:** 16/09/2022	2 Palladium St, Carletonville 2499 **018 487 1340**

Mr A. Dromedaries
2290 Falcon Street
Carltonville
2499
ID Number: 860927 5371 084
Account Number: 84 848 1976
Client Number: 101 1019

Details	Debit (R)	Credit (R)	Date	Balance (R)
Balance brought forward				54,31
TUIB Payment to Tuff Lady	20,00		09/09/2022	34,31
Purchase	63,98		13/09/2022	29,67-
Salary 007		382,14	14/09/2022	352,47
Salary 008		22 695,98	15/09/2022	23 048,45
Salary 009		191,07	15/09/2022	23 239,52
TUIB Transfer to Thys	2 400,00		15/09/2022	20 839,52
TUIB Payment to Maarten	1 000,00		15/09/2022	19 839,52
TUIB Payment to Nicolaas	600,00		15/09/2022	19 239,52
Credit Card	2 361,52		15/09/2022	16 878,00
Insurance 458	500,00		15/09/2022	16 378,00
Insurance 459	532,75		15/09/2022	15 845,25
WESTBANK Bond	5 569,75		15/09/2022	10 275,50
Insurance 503	801,23		15/09/2022	9 474,27
Pre-Paid Water	100,00		16/09/2022	9 374,27
Car repayment	3 168,79		16/09/2022	6 205,48
##Pre-Paid Water Fee	…		16/09/2022	6 204,38
Planet Fitness	289,00		16/09/2022	5 915,38

End

NB: Transaction means any debits or credits on the account.

TUIB > Transactions Using Internet Banking

These fees are inclusive of VAT at 15%

ANNEXURE B

QUESTION 4.3

TAX RATES FOR 2021/22 TAX YEAR

TAX BRACKET	TAXABLE INCOME	TAX RATES (in R)
1	1 – 216 200	18% of taxable income
2	216 201 – 337 800	38 916 + 26% of taxable income above 216 200
3	337 801 – 467 500	70 532 + 31% of taxable income above 337 800
4	467 501 – 613 600	110 739 + 36% of taxable income above 467 500
5	613 601 – 782 200	163 335 + 39% of taxable income above 613 600
6	782 201 – 1 656 600	229 089 + 41% of taxable income above 782 200
7	1 656 601 and above	587 593 + 45% of taxable income above 1 656 600

[Adapted from www.sars.gov.za]

Table 8 below shows the tax rebates and medical tax credits for the 2021/22 tax year.

TAX REBATES AND MEDICAL TAX CREDITS FOR THE 2021/22 TAX YEAR

TAX REBATES	
Primary	R15 714
Secondary (65 and older)	R8 613
Tertiary (75 and older)	R2 871
MEDICAL TAX CREDITS PER MONTH	
Main member	R332
First member	R332
Each additional member	R224

[Adapted from www.sars.gov.za]