

GRADE 11

MATHEMATICAL LITERACY

PAPER 1

JUNE EXAMINATION

09 JUNE 2023

MARKS: 75

TIME: 1,5 HOUR

:

This paper consists of 9 pages.

INSTRUCTIONS AND INFORMATION

1. This paper consists of THREE questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Draw a line at the end of EACH question.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL the calculations clearly.
6. Round ALL the final answers accordingly, unless stated otherwise OR where the REAL LIFE context requires rounding UP or DOWN.
7. Write neatly and legibly.

QUESTION 1

1.1. Lihle gets a loan of R3 000 from a moneylender over 12 months.

The first financial statement that she receives from the moneylender is shown below:

FINANCIAL STATEMENT			
Name: Lihle Khoza			
Reference number: 02938194			
Date	Transaction	Amount	Balance
2022/05/01	Opening balance		– R3 000,00
2022/06/01	Debit: Interest	– R75,00	– R3 075,00
2022/06/01	Administrative fee	– R6,25	– R3 081,25
2022/06/01	Electronic transfer: credit	R300,00	– R2 781,25
2022/07/01	Debit: Interest	– R69,53	A
2022/07/01	Administrative fee	– R6,25	– R2 857,03
2022/07/01	Electronic transfer: credit	R300,00	B

Study the financial statement above and answer the following questions.

- 1.1.1 Explain the word ‘Opening balance’ in the given context. (2)
- 1.1.2 Calculate the administrative fee for the year. (2)
- 1.1.3 What percentage interest is charged in one month? (3)
- 1.1.4 Calculate the values of **A** and **B** in the statement. (4)
- 1.1.5 Write down the ratio of the electronic transfer to the opening balance in the simplest form. (2)

1.2. A fitness trainer introduced a new fitness Programme. Part of the Programme involved doing as many push-ups as possible in 30 seconds.

The individual results of a group of learners are given below:

14;21;13;11;13;14;18;19;21;19;18;21;
15;23;14;16;20;24;27;30;20;21;22

Use the information above to answer the following questions:

1.2.1. Arrange the individual results of learners in descending order. (2)

1.2.2. The data of individual results of learners is organized in a frequency table below, Complete the frequency table by writing the missing values A-E.

Number of push-ups	Tallies	Frequency
10 – 15	A.	7
16 – 21	B.	C.
22 – 30	—//—	D.
	Total	E.

(5)


1.2.3. What percentage of the group of learners managed more than 18 push-ups in 30 seconds? (2)

(2)

[22]

QUESTION 2

2. Nandi's husband, Mr Cloete is a part time lecturer at a local university. Study his payslip below and answer the questions that follow.

			
Employee name: Mr Cloete		Employee number: 2500453	
Date employed: 01/01/2013		Tax Ref number: 3501789332	
ID number: 6208189725082		Occupation: Part Time Lecturer	
Paydate: 31/08/2022		Pay Slip no: 107	
EARNINGS		DEDUCTIONS	
Basic Salary (20 hours for the month)	R15 000	Tax (regular earnings + allowances)	R1 675
		UIF	R150
		Medical Aid	R3 680
		Pension	A
GROSS SALARY	R15 000	TOTAL DEDUCTIONS	B
NET SALARY	C		

Use the information above to answer the following questions:

- 2.1. What percentage of the basic salary is contributed towards the UIF by both the employer and employee? (2)
- 2.1. Write down Mr Cloete's employee number. (2)
- 2.1. Mr Cloete contributes 9,25% of his basic salary towards his pension fund every month. Calculate the missing value A, Mr Cloete's monthly pension contribution. (3)
- 2.1. Calculate B, the total deductions as shown on his payslip. (2)

2.1. Calculate C, the net salary as shown on his payslip.

(2)

2. Suncrest high school is taking part in a swimming gala at the Cloetesville swimming pool in Stellenbosch.

The entrance fee prices are shown in a tariff table below:

Entrance fees for Cloetesville Swimming Pool	All prices include vat
Children under 10 years	Free
Children 10-18 years	<i>R50,00</i>
Adults	<i>R65,00</i>
Group-booking: 30-40 persons	<i>R1 850</i>
Group-booking: 41-60 persons	<i>R2 550</i>
Group-booking: 61-80 persons	<i>R3 000</i>
Group-booking: 81 and more persons	<i>R3 350</i>

Study the information above and use it to answer the following questions:

2.2. What is the price for a group booking of 41-60 persons?

(2)

2.2. A group consisting of 34 swimmers, accompanied by 2 educators is taking part. The school can decide that every person pays his or her own entrance fee at the pool or pays according to a group tariff.

Use the tariff table above to advice the school whether to make individual payments or make a group booking.

(6)

2.2. The swimming gala is taking place at an Olympic size rectangular swimming pool with a capacity of 2 500 kl.

Use the tariff list below to work out the cost of filling the pool according to the domestic rates.

Domestic water rates	All prices include vat
<i>0kl – 6kl</i>	<i>R3,93 / kl</i>
<i>7kl – 20kl</i>	<i>R5,59 / kl</i>
<i>21kl – 40kl</i>	<i>R9,34 / kl</i>
<i>41kl – 60kl</i>	<i>R13,90 / kl</i>
<i>61kl and above</i>	<i>R18,72 / kl</i>
Additional Basic charge	<i>R45,09</i>

(5)

2.2. Determine the VAT exclusive amount of the Additional Basic charge.

(3)

2. Siya is on a working holiday in America. He budgeted to keep enough money to pay for his car in South Africa (In rands).

He must pay an installment of R6 800,00 per month.

The exchange rate table dated 01/05/2023 is given below, study the table and answer the questions that follow:

	1 ZAR (Rand)	In ZAR
American dollar	0,055	18,32

2.3. Which currency is stronger between the Rand and the American dollar?

(2)

2.3. Calculate the amount that Siya must pay on his car installment in American dollar.

(2)

[31]

QUESTION 3

3.1. The following table illustrates the number of vehicles involved in fatal accidents per province for the years 2021 and 2022.

NUMBER OF VEHICLES INVOLVED IN FATAL ACCIDENTS										
YEAR	GP	KZN	WC	EC	FS	MP	NW	LP	NC	RSA
2021	3530	2923	1678	1367	1025	1541	1220	1290	355	14908
2022	4024	2995	1742	1775	1184	1616	1285	1353	376	16349
Change	494	72	64	A	159	75	65	63	41	1440
% Change	13,99	2,47	3,80	29,86	15,50	4,88	5,30	4,89	12,17	9,66

Study the table above and use it to answer the following questions:

3.1.1. Which Province had the highest number of fatal vehicle accidents in 2021 and 2022?

(2)

3.1.2. How many Provinces experienced an increase above 10% in the number of vehicles involved in fatal accidents from 2021 to 2022?

(2)

3.1.3. Calculate the missing value of 'A' from the table.

(2)

- 3.1.4. Determine the Probability, as a percentage of randomly selecting a vehicle involved in a fatal accident from KZN in 2022. (3)

- 3.2. Mr Zulu runs a small cleaning company, and the following information is about the company's employees.

Employee number	Gender	Age	Annual salary (1 000 rand)
1	M	28	128
2	M	43	245
3	F	36	126
4	M	54	287
5	F	38	140
6	F	51	325
7	F	38	145
8	M	33	329
9	M	29	248
10	F	61	360
11	M	59	635
12	F	46	280

Use the information in the above table to answer the following questions:

- 3.2.1. Why is the gender of employees classified as Categorical data? (2)

- 3.2.2. Mr Zulu stated that the average annual salary paid to his employees is R189 000. Calculate the mean of the annual salaries paid to employees to verify whether Mr Zulu's claim is valid or not. (4)
- 3.2.3. Calculate the median annual salary paid to the employees. (3)
- 3.2.4. Determine the range annual salary paid to the employees. (2)
- 3.2.5. Determine the mode of the annual salaries. (2)
- [22]**

TOTAL = 75 MARKS

GRADE 11

MATHEMATICAL LITERACY

PAPER 1

MEMORANDUM

09 JUNE 2023

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
MCA	Method with constant accuracy
A	Accuracy
C	Conversion
S	Simplification
RT / RG /	Reading from a table / graph / diagram
SF	Correct substitution in a formula
O	Opinion / Example / Definition / Explanation
R	Rounding off
NPR	No penalty rounding or omitting units
AO	Answer only, full marks
J	Justify

MARKS:

TIME: 1,5 HOURS

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QUESTION 1		AO Full marks	[22 MARKS]	
	Explanation	Awarding of marks	Marks	TL
1.1.1	The amount of money that Lihle owed to the money lender at the beginning of the period. ✓✓	2A Explanation according to the context	(2)	TL1
1.1.2	$(R6,25 + R6,25) \times 12 = R150,00$	1M Adding and Multiplying by 12 1A Corrcet answer	(2)	TL1
1.1.3.	$\% Interest = \frac{R75,00}{R3\ 000} \times 100 = 2,5 \%$ <p>OR</p> $\% Interest = \frac{R69,53}{R2\ 781,25} \times 100 = 2,5 \%$	1M Dividing the values correctly 1M Percentage concept 1A Correct answer	(3)	TL1
1.1.4.	$A = - R2\ 781,25 - R69,53$ $= - R2\ 850,78$ $B = - R2\ 857,03 + R300$ $= - R2\ 557,03$	1M Subtracting the values 1A Value of A 1M Subtracting the values to find B 1A Value of B <i>Accept A: R2 850,78</i> <i>Accept B: R2 557,03</i>	(4)	TL1
1.1.5.	$R300 :R3\ 000$ $= 1:10$ <p style="text-align: center;">✓A</p>	1M Writing ratio in the correct order 1A simplified ratio	(2)	TL1
1.2.1.	30 27 24 23 22 21 21 21 21 20 20 19 19 18 18 16 15 14 14 14 13 13 11	2A Arranging values in descending order	(2)	TL1
1.2.2.	A. IIII II B. IIII IIII I C. 11 D. 5 E. 23	5A Correct values A-E	(5)	TL 1
1.2.3.	$\frac{13}{23} \times 100$ $= 56,52 \%$	1MA for $\frac{13}{23}$ 1A Correct answer	(2)	TL 1

QUESTION 2		[31 MARKS]		
	Explanation	Awarding of marks	Marks	TL
2.1.1.	2%	2A Correct answer	(2)	TL1
2.1.2.	2500453	2A Correct answer	(2)	TL1
2.1.3.	$\frac{9,25}{100} \times 15\,000 = R1\,387,50$	1M multiply with percentage 1RT basic salary 1A R1 387,50	(3)	TL2
2.1.4.	B: R1 675 + R150 + R3 680 + R1 387,50 ✓MA = R6 892,50 ✓CA	CA from 2.1.3. 1MA adding 1CA R6 742,50	(2)	TL1
2.1.5.	C: R15 000 - R6 892,50 ✓M = R8 107,50 ✓CA	CA from 2.1.4. 1M subtract 1CA R8 257,50	(2)	TL2
2.2.1.	R2 550	2RT Correct value	(2)	TL1
2.2.2.	Group booking of 36 people = R1 850 Individual payment = $(34 \times R50) + (2 \times R65)$ = R1 830 <i>∴ The school must make individual payments as it is cheaper.</i>	1A Correct booking value 1M Multiplying 34 by the correct tariff 1M Multiplying 2 by the correct tariff 1CA Answer 1 Conclusion	(5)	TL 4
2.2.3.	Cost = $(6\,kl \times R3,93) + (14\,kl \times R5,59) + (20\,kl \times R9,34) + (20\,kl \times R13,90) + (2\,440\,kl \times R18,72)$ = R23,58 + R78,26 + R186,80 + R278 + R2 458,72 = R3 025,36 $R3\,025,36 + R45,09 = R3\,070,45$	2M Breaking down the tariffs correctly 1CA Answer 1M Adding Basic Charge 1CA Answer	(5)	TL 3
2.2.4.	$R45,09 \times \frac{100}{115}$ = R39,21	2M Vat exclusive concept 1A Answer	(3)	TL 2
2.3.1.	American Dollar	2RT Correct answer	(2)	TL1

2.3.2.	$0,055 \times R6\ 800$ $= \$374$ <p style="text-align: center;"><i>OR</i></p> $\frac{R6\ 800}{R18,32}$ $= R371,18$	1C Converting from rands to US Dollar	(2)	TL2
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QUESTION 3		[22 MARKS]		
	Explanation	Awarding of marks	Marks	TL
3.1.1.	Gauteng	2 RT	(2)	TL1
3.1.2.	Four Provinces	2 RT	(2)	TL1
3.1.3.	$A = 1\ 775 - 1\ 367$ $= 408$	1M Difference 1A Correct value AO	(2)	TL2
3.1.4.	$\text{Probability} = \frac{2\ 995}{16\ 349} \times 100$ $= 18,32\ %$	1A Numerator 1A Denominator 1CA Percentage answer	(3)	TL2
3.2.1.	Because it is organised/classified in categories of gender.	2O Reasoning	(2)	TL4
3.2.2	$\text{Mean} = \frac{128 + 245 + 126 + \dots + 280}{12}$ $= \frac{3\ 248}{12}$ $= 270,66667$ $= 270\ 666,67$ $\therefore \text{His statement is invalid}$	1MA Mean concept 1S Simplifying 1CA Answer in thousand 1O Conclusion	(4)	TL4
3.2.3.	126 128 140 145 245 248 280 287 325 329 360 635 $\text{Median} = \frac{248 + 280}{2}$ $= 264 \text{ OR } 264\ 000$	1A Arranging in ascending/descending order 1M Median concept 1CA Answer	(3)	TL 3
3.2.4.	$\text{Range} = \text{Maximum} - \text{Minimum}$ $= 635 - 126$ $= 509 \text{ OR } 509\ 000$	1M Range concept 1CA Answer	(2)	TL 2
3.2.5.	No mode / None	2A Answer If learner wrote mode = 0; award zero mark.	(2)	TL 2

Question Number	TL1	TL 2	TL3	TL4
1.1.1.	2			
1.1.2.	2			
1.1.3.	3			
1.1.4.	4			
1.1.5.	2			
1.2.1.	2			
1.2.2.	5			
1.2.3.	2			
2.1.1.	2			
2.1.2.		2		
2.1.3.		2		
2.1.4.		2		
2.1.5.		3		
2.2.1.	2			
2.2.2.				6
2.2.3.			5	
2.2.4.			3	
2.3.1.		2		
2.3.2.		2		
3.1.1.		2		
3.1.2.		2		
3.1.3.			2	
3.1.4.			3	
3.2.1.				2
3.2.2.				4
3.2.3.			3	
3.2.4.		2		
3.2.5.		3		
Total	24	22	17	12
%	32	29	23	16
100				