



MATHEMATICAL LITERACY
JUNE EXAMINATION 2023 - PAPER 1
GRADE 10

Stanmorephysics.com

TIME: 1 HOUR

MARKS: 50

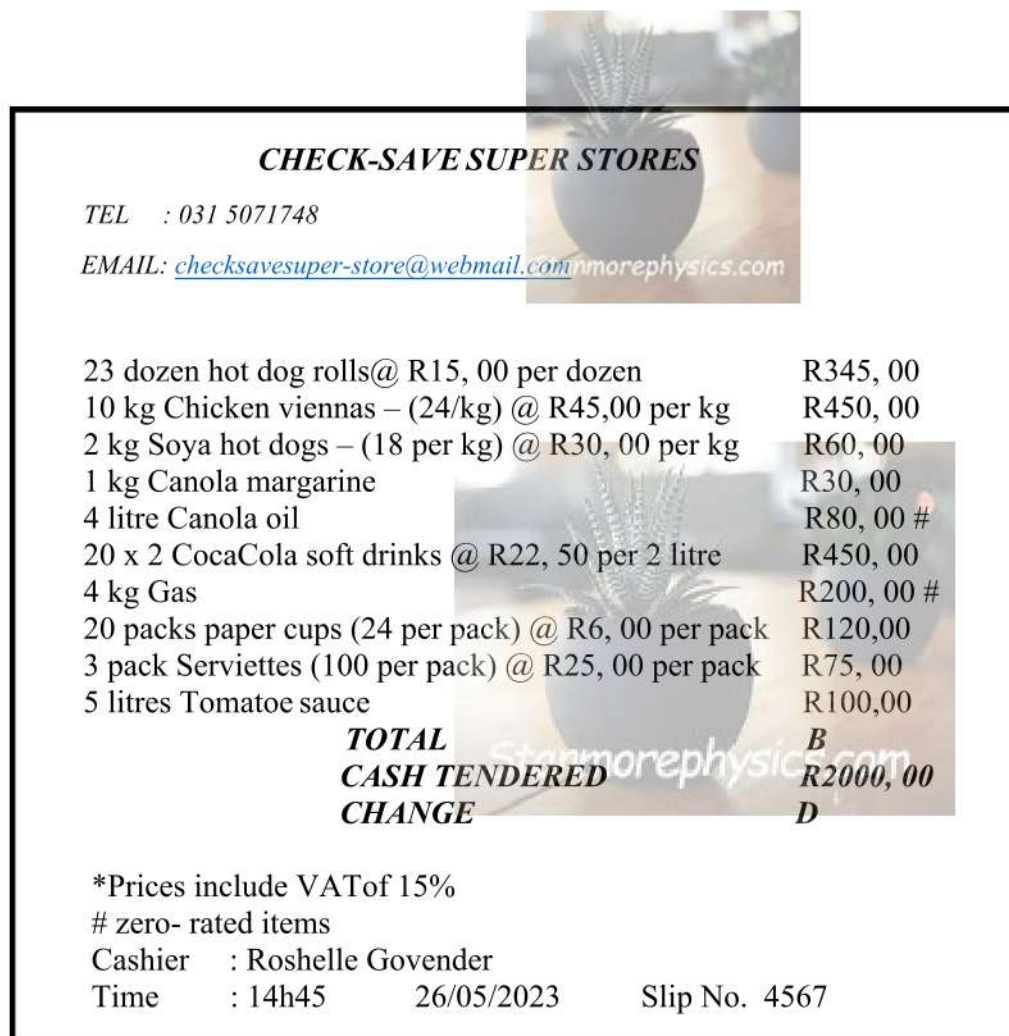
INSTRUCTIONS AND INFORMATION

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 according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Write neatly and legibly.

QUESTION 1

1.1 The representative council of learners (RCL) of Earlcroft High School decided to raise funds to purchase a generator for the school to use during loadshedding. The school governing body (SGB) agreed that every amount raised will assist as it would be costly to run a generator at the school. For the first round of fund raising, the RCL members decided to sell hotdogs and cooldrinks to the learners at the school. The SGB purchased the following items to make the hotdogs.

Refer to the financial document below and answer the questions that follow:



CHECK-SAVE SUPER STORES

TEL : 031 5071748

EMAIL: checksavesuper-store@webmail.com

23 dozen hot dog rolls @ R15, 00 per dozen	R345, 00
10 kg Chicken viennas – (24/kg) @ R45,00 per kg	R450, 00
2 kg Soya hot dogs – (18 per kg) @ R30, 00 per kg	R60, 00
1 kg Canola margarine	R30, 00
4 litre Canola oil	R80, 00 #
20 x 2 CocaCola soft drinks @ R22, 50 per 2 litre	R450, 00
4 kg Gas	R200, 00 #
20 packs paper cups (24 per pack) @ R6, 00 per pack	R120,00
3 pack Serviettes (100 per pack) @ R25, 00 per pack	R75, 00
5 litres Tomatoe sauce	R100,00
TOTAL	B
CASH TENDERED	R2000, 00
CHANGE	D

*Prices include VAT of 15%

zero- rated items

Cashier : Roshelle Govender

Time : 14h45 26/05/2023 Slip No. 4567

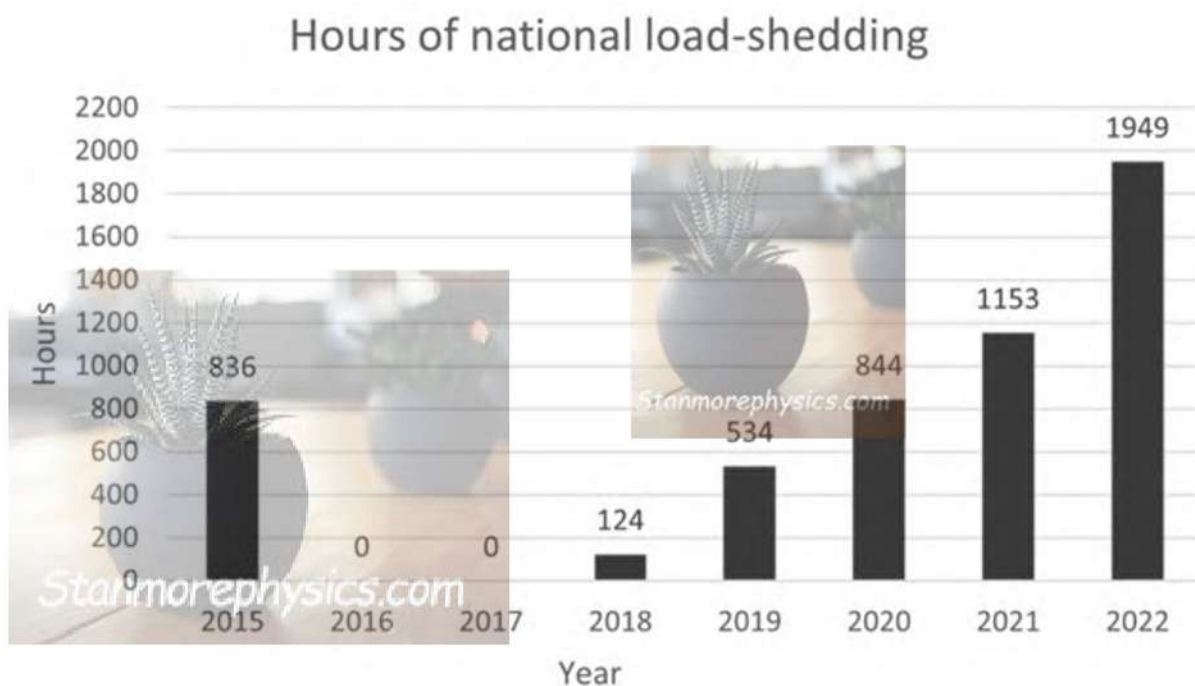
1.1.1 Identify the financial document shown above. (2)

1.1.2 Calculate the value of B, the total cost of the items. (2)

1.1.3 Name ONE perishable item from the items purchased. (2)

1.2 The RCL decided to show the learners at the school how loadshedding has become a crises in South Africa. They used the graph below showing the number of hours of loadshedding per year from 2015 to 2022.

Use the graph to answer the questions below:



1.2.1 Name the type of graph used by the RCL members. (2)

1.2.2 Is the number of hours recorded discrete or continuous as it is shown on the graph? (2)

1.2.3 Write down the year in which the second highest number of hours was recorded. (2)

1.2.4 How many hours of loadshedding occurred from 2015 to 2022. (2)

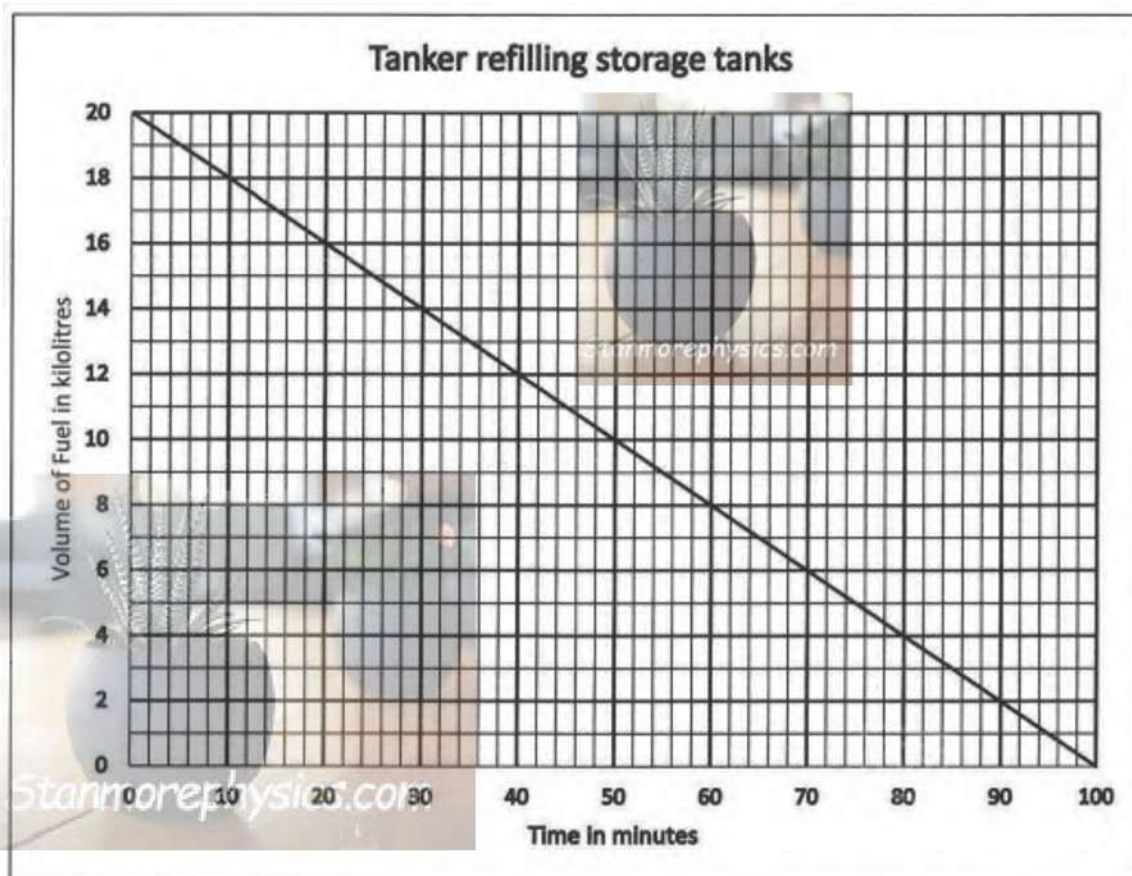
[14]

QUESTION 2

Earlcroft High School will need to ensure that they always have diesel to operate the generator. They contacted Joshua, who works at the petrol station nearby and made arrangements for the delivery of Diesel.

2.1 Diesel is transported from the coast in fuel truck tankers.

The graph below shows the time in minutes that it takes to empty the tanker to refill the storage tanks at the petrol station. Study the graph below and answer the questions that follow.



2.1.1 Explain why the relationship in the graph above is called an inverse proportion relationship. (2)

2.1.2 The fuel tanker can carry 20 *kl* of diesel. If it is filled up to 80% only, calculate how many *kl* of diesel is in the fuel tanker. (2)

2.1.3 Determine how long in hours and minutes it will take to empty the fuel tanker to 0 kilolitres? (3)

2.2 Joshua works at the petrol station. The table below shows his earning according to the Number of hours worked. Study the table and answer the questions that follow.

Table 1: Earning rates per number of hours worked

Time (in hours)	4	8	12	16	20	24
Earnings (in rand)	R120	R240	R360	R480	R600	R720

2.2.1 Joshua works for eight hours a day and for three days in the week. Show by calculation that Joshua earns R30 an hour and then determine how much he earned in the week. (5)

2.2.2 Write down an equation that can be used to calculate Joshua's wage based on the number of hours worked. (2)

2.3 Joshua has a bank account with Mega Bank. The table below shows the bank Fees that Mega Bank charges. Study the table below and answer the questions that follow

Mega Bank Account Fees	
Monthly Account Fee	R65,00
Cellphone banking	R0,00
Cash Withdrawals (Mega Bank ATM)	
First R1 500	R0,00
More than R1 500	R12,00 + R1,20 per R100 (or part thereof)
Cash Withdrawals (Other bank ATM)	R15,00

Joshua withdraws R 1 700 at the Mega Bank ATM. Calculate the fee that Joshua will be charged. (4)

2.4 Joshua draws up a monthly household budget as seen below. Study the budget and answer the questions that follow

INCOME	AMOUNT	EXPENDITURE	AMOUNT
Salary	R11 750	Groceries	R2 100
		Rent	-----
		Petrol	R1 000
		Car payment	R1 800
		Electricity	-----
		Clothing	R450
		Insurance	R320
		Entertainment	R600

2.4.1 What percentage of Joshua's salary is spent on groceries. Round off your answer to the nearest percentage. (3)

2.4.2 Joshua spends a total of R3 700 on electricity and rent combined. If the ratio of electricity to rent is 1 : 4, determine the amount he pays for electricity. (3)

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QUESTION 3

The School Governing Body is extremely concerned about the extra costs incurred from the use of the generator at school as South Africa's energy crises is worsening at a dangerous speed when compared with energy data over the past decade.

The table below shows Eskom's energy availability from 2013 to 2022. Study the table below and answer the questions that follow

Table 2: Eskom's energy availability factor (EAF)

Financial Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
EAF - Percentage	75,13	73,73	71,07	77,3	78	69,95	66,64	64,19	61,8	53,16

3.1 Determine the median EAF percentage. (3)

3.2 The chairperson of the SGB claims that the mean EAF is 72%. Calculate the mean EAF to verify if his claim is correct. (4)

3.3 Provide a definition for the term mode and state if there is a mode in the data set. (2)

3.4 What is the probability that the EAF percentage will be above 75%. Give your answer in the form of a percentage. (3)

[12]

TOTAL: 50 MARKS



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JUNE EXAM
MARKING GUIDELINES
GRADE 10

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NUMBER OF PAGES: 4

Codes	Explanation
M	Method
MA	Method with Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification / Reason / Explain
S	Simplification
RT / RD / RG	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off OR omitting units

QUESTION 1 [14]			
Quest	Explanation	Marks	TL
1.1.1	Cash sales slip ✓✓ A OR Till slip	2A Correct answer	F1
1.1.2	$B = R345 + R450 + R60 + R30 + R80 + R450 + R200 + R180 + R75 + R100$ ✓ M $= R1\ 970$ ✓ CA	CA from 1.1.3 1M adding correct values 1CA simplification AO – Full marks	F1
1.1.3	Rolls/ chicken viennas/ soya hot dogs/ margarine/ sauce ✓✓ A	2A any one answer	F1
1.2.1	Bar graph ✓✓ A	2A Bar graph	DH1
1.2.2	Discrete ✓✓ A	2A Answer	DH1
1.2.3	2021 ✓✓ A	2A Answer	DH1
1.2.4	$Total\ hours = 836 + 124 + 534 + 844 + 1153$ ✓ M $= 3491$ ✓ A	1M adding correct values 1A answer AO – Full marks	DH1

QUESTION 2 [24]			
Quest	Explanation	Marks	TL
2.1.1	<p style="text-align: right;">✓ A</p> <p>The time taken to empty the tanker increases as the number of litres of fuel decreases. ✓</p>	<p>1A Increase in time</p> <p>1A Decrease in litres of fuel</p>	F4
2.1.2	<p>Capacity = $\frac{80}{100} \times 20 \text{kl}$ ✓ M</p> <p>16kl ✓ A</p> <p>Time taken = 100 min – 20 min ✓ MA</p> <p>= 80 min ✓</p> <p>1 hour 20 min ✓ A</p>	<p>1M % concept</p> <p>1A capacity</p> <p>1MA subtracting 20 minutes</p> <p>1A 80 min</p> <p>1A time in hours and minutes.</p>	F3
2.2.1	<p>Rate per hour = $R120 \div 4$</p> <p>= R30 ✓ A</p> <p>No. of hours worked = 3×8 ✓ M</p> <p>= 24 days ✓ A</p> <p>Total earnings = $24 \times R30$ ✓ CA</p> <p>= R720</p> <p>His claim is valid ✓ A</p>	<p>1A answer</p> <p>1M multiplying correct values</p> <p>1A No. of hours worked</p> <p>1CA total earnings</p> <p>1J Justification</p>	F4
2.2.2	<p style="text-align: center;">✓ A</p> <p>Earning per day = $R30 \times \text{no. of hours worked}$ ✓ A</p> <p style="text-align: center;">OR</p> <p>Earning per day = $R30 \times n$</p> <p>where n is the number of hours worked</p>	<p>1A Rate</p> <p>1A variable</p>	F2
2.3	<p>$R1\ 700 - R1\ 500 = R200$ M (over R1 500) ✓ M</p> <p>Fee = $R12,00 + (R1,20 \times 2)$ ✓ SF</p> <p>= R14,40 ✓ CA</p> <p style="text-align: center;">OR</p> <p>$R200 \div 100 = 2$</p> <p>$(2 \times R1,20) + R12,00$</p> <p>= R14,40</p>	<p>1M subtracting amounts</p> <p>1A R200</p> <p>1SF correct value substituted</p> <p>1CA answer</p>	F3

2.4.1	$\% = \frac{2100}{11750} \times 100 \checkmark \text{ MA}$ $= 17,8723 \dots \checkmark \text{ S}$ $= 18 \% \checkmark \text{ R}$	1MA multiplying correct values 1S Simplification 1R rounding	F2
2.4.2	$\text{Total} = 1 + 4 = 5 \text{ parts} \checkmark \text{ MA}$ $\text{Electricity} = \frac{1}{5} \times R3700 \checkmark \text{ M}$ $= R740 \checkmark \text{ CA}$	1MA adding parts for ratio 1M calculating ratio 1CA answer	F2

QUESTION 3 [12]			
Quest	Explanation	Marks	TL
3.1	Mode – A value that occurs the most in a data set. ✓✓	2A Definition	F1
3.2	53,16; 61,8; 64,19; 66,64; 69,95; 71,07; 73,73; 75, 13, 77,3; 78 ✓ M $\text{Median} = \frac{69,95 + 71,07}{2} \checkmark \text{ MA}$ $= 70,51 \checkmark \text{ CA}$	1M Arranging in ascending order 1MA calculating median 1CA Answer	F2
3.3	$\text{Mean} = \frac{690,97}{10} \checkmark \text{ MA}$ $= 69,1 \checkmark \text{ CA}$ His claim is incorrect ✓ A	1MA adding correct values 1M divide by 10 1CA Answer 1A incorrect claim	F4
3.4	$P(\text{above } 75 \%) = \frac{3 \text{ A}}{10 \text{ A}}$ $= 30 \% \checkmark \text{ CA}$	1A Numerator 1A Denominator 1CA Answer as a %	P2



ANALYSIS GRID – GRADE 10 P1

Question	TL 1	TL 2	TL 3	TL 4	Finance	DH	P
1.1.1	2				2		
1.1.2	2				2		
1.1.3	2				2		
1.2.1	2					2	
1.2.2	2					2	
1.2.3	2					2	
1.2.4	2					2	
2.1.1				2	2		
2.1.2			5		5		
2.2.1				5	5		
2.2.2		2			2		
2.3			4		4		
2.4.1		3			3		
2.4.2		3			3		
3.1	2					2	
3.2		3				3	
3.3				4		4	
3.4		3					3
TOTAL	16	14	9	11	30	17	3
%	32	28	18	22	60%	34%	6%
ABRIDGED CAPS	30	30	20	20	60%	35%	5%

Finance = 30 marks (60%)

Expected: 60%

Data handling = 17 marks (34%)

Expected: 35%

Probability = 3 marks (6%)

Expected: 5%